Course Syllabus

SIPS 609

Academic Year 2023

Department of Physiology

Faculty of Medicine Siriraj Hospital, Mahidol University

Course ID and name:	SIPS609: Advanced Skills in Medical Physiological Research
Course coordinator:	Assoc. Prof. Sorachai Srisuma, MD, PhD
Instructors:	Assoc. Prof. Suwattanee Kooptiwut, MD, PhD
	Assoc. Prof. Sorachai Srisuma, MD, PhD
	Assoc. Prof. Reawika Chaikomin, MD, PhD
	Assoc. Prof. Narawut Pakaprot, MD, PhD
	Assoc. Prof. Chantacha Sitticharoon, MD, PhD
	Asst. Prof. Yodying Dangprapai, MD, PhD
Credits:	2 (2-0-4) (lecture – laboratory – self-study)
Curriculum:	Doctor of Philosophy Program in Medical Physiology
Course type:	☐ Core ☑ Required ☐ Electives
Semester offering:	1st semester of 1st year
Prerequisite:	not applicable
Date of Latest Revision:	January 13, 2024

Course Description:

Scientific literature review, critical and logical thinking relevant to students' research projects in medical physiology on research questions, rationale, experimental design to prove research questions, conceptual frameworks, research ethics, research data analysis, interpretation of results, scientific value and impact of the work, sensible discussion and summary, prediction of potential problems and solutions, oral presentation and written research proposal, discussion and providing feedback on research ideas and projects

Course-level Learning Outcomes (CLOs)

Upon completion of this course, students are able to:

1. Conceptualize research problems, ideas, hypotheses and experimental designs into physiological/biomedical research framework.

2. Evaluate hypothesis and data with appropriate methodologies to reach the conclusion of new information or major developments in physiological/biomedical research.
3. Develop the written grant proposals with clear and testable hypotheses, objectives, research plans, appropriate budgets and appropriate ethical considerations.

Constructive Alignment of CLOs and Program's ELOs

CLOs	ELO1	ELO2	ELO3	ELO4
1. Conceptualize research problems, ideas, hypotheses and experimental designs into physiological/ biomedical research framework.	P	P	P	R
2. Evaluate hypothesis and data with appropriate methodologies to reach the conclusion of new information or major developments in physiological/biomedical research.	P	P	P	R
3. Develop the written grant proposals with clear and testable hypotheses, objectives, research plans, appropriate budgets and appropriate ethical considerations.	P	P	P	R

Remarks: Show the level of the course management with the symbols I, R, P, and M.

Program's Expected Learning Outcomes

1. Analyze the different concepts, theories, hypotheses related to medical physiological field of interest.
2. Conduct extensive and independent research in medical physiology that expands the frontiers of knowledge in the field of an area of interest.
3. Criticize the research work with a detailed and leading-edge knowledge of physiology in an area of interest.
4. Disseminate new insights of medical physiology to peers and the scientific community at international level.

Course Schedule and teaching/assessment plan

No.	Topic	Hours			CLOs	Teaching & learning strategy	Assessment (in-class)	Lecturers
		Lecture	Laboratory	Self Study				
1	Orientation and overview: Preparation of Research Presentation, research proposals and Qualifying Examination	-1	-	2	1,2,3	Lecture	Feedback, response to questions	Dr.Sorachai
2	Presentation: How to develop your own style 1	1	-	2	1,3	Discussion	Feedback	Dr.Yodying
3	Presentation: How to develop your own style 2	1	-	2	1,3	Discussion	Feedback	Dr.Yodying
4	Funding resources, type of grants and approaches to develop them	1.5	-	3	3	Discussion	Feedback	Dr.Narawut
5	Developing grant proposals	1.5	-	3	3	Discussion	Feedback	Dr.Suwattanee
6	Grant review process	1.5	-	3	3	Discussion	Feedback	Dr.Chantacha
7	Scientific article presentation preparation 1	3	-	6	1,2	Discussion	Feedback	Faculty
8	Scientific article presentation 1	1	-	2	1,2	Presentation	Feedback, response to questions	Dr.Reawika
9	Scientific article presentation preparation 2	3	-	6	1,2	Discussion	Feedback	Faculty
10	Scientific article presentation 2	1	-	2	1,2	Presentation	Feedback, response to questions	Dr.Reawika

11	Scientific article presentation participation 1	1	-	2	2	Presentation & participation	Inquiry, comment	Faculty
12	Scientific article presentation participation 2	1	-	2	2	Presentation & participation	Inquiry, comment	Faculty
13	Scientific article presentation participation 3	1	-	2	2	Presentation & participation	Inquiry, comment	Faculty
14	Scientific article presentation participation 4	1	-	2	2	Presentation & participation	Inquiry, comment	Faculty
15	Scientific article presentation participation 5	1	-	2	2	Presentation & participation	Inquiry, comment	Faculty
16	Scientific article presentation participation 6	-1	-	2	2	Presentation & participation	Inquiry, comment	Faculty
17	Scientific article presentation participation 7	1	-	2	2	Presentation & participation	Inquiry, comment	Faculty
18	Scientific article presentation participation 8	1	-	2	2	Presentation & participation	Inquiry, comment	Faculty
19	Scientific article presentation participation 9	1	-	2	2	Presentation & participation	Inquiry, comment	Faculty
20	Research proposal presentation 1	1	-	2	1,2	Presentation	Feedback, response to questions	Dr.Sorachai
21	Research proposal presentation 2	1	-	2	1,2	Presentation	Feedback, response to questions	Dr.Sorachai

22	Research proposal presentation 3	1	-	2	1,2	Presentation	Feedback, response to questions	Dr.Sorachai
23	Grant proposal development 1	1	-	2	1,2,3	Discussion	Feedback	Faculty
24	Grant proposal development 2	1	-	2	1,2,3	Discussion	Feedback	Faculty
25	Grant proposal development 3	1	-	2	1,2,3	Discussion	Feedback	Faculty
Total hours of the study		**30.5**	**0**	**61**				

Course Assignments

- Two presentations of research articles
- Submission of research proposal
- Submission of grant proposal

Assessment Criteria

- Rubric assessment for presentations of research articles
- Rubric assessment for appraisal and inquiries for other research presentations
- Rubric assessment for grant research proposal
- Setting up of proposing qualifying exam committee

Appeal Procedure

An appeal can be made by a student to the course coordinator or the graduate program director.