Course syllabus

MBNS754 Selected Topics in Contemporary Neuroscience

The academic year 2023

Course ID and Name: MBNS654 Selected Topics in Contemporary Neuroscience

Course Coordinator: Prof. Banthit Chetsawang, Ph.D. Email: banthit.che@mahidol.ac.th

Instructors:

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2. Assoc. Prof. Nuanchan Chutabhakdikul, Ph.D. (nuanchan.chu@mahidol.ac.th)
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5. Lect. Jiraporn Panmanee, Ph.D. (jiraporn.pam@mahidol.ac.th)

Credits: 2 (2-0-4)

Curriculum: Doctor of Philosophy Program in Neuroscience (elective course)

Semester offering: Second semester

Pre-requisites: None

Course learning outcomes:

Upon completion of the course, students are able to:

1. Summarize the critical knowledge of selected contemporary research topics from research and review publications in neuroscience. (PLO2) P

2. Integrate the critical knowledge of selected research topics and technologies in neuroscience to generate further research study. (PLO3) P

3. Develop the concept paper or pre-research proposal in neuroscience with ethical awareness. (PLO1, PLO3) P

4. Acquire scientific communication skills by presenting a concept paper to the public via a short seminar. (PLO4, 5) P

Alignment of teaching and assessment methods to course learning outcome:

Course learning outcome	Teaching method	Assessment methods
1. Summarize the critical knowledge of selected contemporary research topics from research and review publications in neuroscience.	assignment	assessment of assigned work by the mentor (rubric scale)
2. Integrate the critical knowledge of selected research topics and technologies in neuroscience to generate further research study.	assignment	assessment of assigned work by the mentor (rubric scale)
3. Develop the concept paper or pre-research proposal in neuroscience with ethical awareness.	concept paper	assessment of assigned work by the mentor (rubric scale)
4. Acquire scientific communication skills via presenting concept paper to the public via a short seminar.	presentation	Oral presentation (rubric scale)

Course description:

An independent study on selected topics of the contemporary neuroscience research, related to neurological and mental health problems; effects of the brain and behaviors in children; aging of the brain and the neurodegeneration such as Alzheimer's disease; substance abuses; the stress and stress management; new innovative technologies in the neuroscience research; developing concept papers and giving presentations to the class

Course schedule:

Date: Monday to Friday (October 30-Dec 1, 2023)

Time: Manage by the Faculty mentor

Rooms: Class activity will be held onsite at Molecular Biosciences (MB) Building, Mahidol University, Salaya, Nakhon Pathom, or online platform through videoconferencing application, either through WebEx or Zoom depending on the situation of the COVID-19 pandemic in Thailand.

Date/Time	Topic/Details	Number of Hours	Class Activity/ Teaching Media	Lecturer
Oct 30, 2023 09.00 am.- 10.00 am.	Course orientation	1	Orientation	Banthit
Oct 31 – Nov 29, 2023	1. Literature review of selected contemporary research topics from research and review articles	10	active learning, group discussion	Faculty mentor
	2. Discuss the critical knowledge of selected contemporary research topics from research and review publications in neuroscience.	10	group discussion	Faculty mentor
	3. Concept paper preparation	6	Mentoring by PI	Faculty mentor
Nov 30, 2023 09.00 am.- 12.00 pm.	4. Concept paper presentation	3	Oral presentation	Faculty staff

Assessment Criteria:

Assessment criteria	Assessment method	Scoring rubrics
Student performance evaluation by a faculty mentor 20%	(1) Direct observation	Scoring directly from performance of the student
Individual assignment 50%	(1) Concept paper	Scoring directly from quality of concept paper
Oral presentation 30%	(1) Short presentation	(1) Information quality and organization of the topic presented (2) Verbal communication and

		English proficiency (3) Non-verbal communication (4) Visual tools

Student's achievement will be graded using symbols: A, B+, B, C+, C based on the distribution of students' scores from the whole course.

Grading system

Final total score (100%)	85 to 100	A	GPA 4.0
	80 to 84	B+	GPA 3.5
	70 to 79	B	GPA 3.0
	60 to 69	C+	GPA 2.5
	50 to 59	C	GPA 2.0
	45 to 49	D+	GPA 1.5
	40 to 44	D	GPA 1.0

Date revised: October 25, 2022

Rubric for student performance evaluation by mentor

Score	Performance
5	Student performance is excellent with the majority of assessment rated as proficient on literature review of selected contemporary research topic from research and review articles, discussion on the critical knowledge of selected contemporary research topics from research and review publications in neuroscience and concept paper preparation.
4	Student performance is good with most assessment at the adequate level on discussion on literature review of selected contemporary research topic from research and review articles, discussion on the critical knowledge of selected contemporary research topics from research and review publications in neuroscience and concept paper preparation.
3	Student performance is fair with most assessment at the adequate level on discussion on literature review of selected contemporary research topic from research and review articles, discussion on the critical knowledge of selected contemporary research topics from research and review publications in neuroscience and concept paper preparation.
2	Student performance is barely adequate with less than half of assessment at the adequate level on discussion on literature review of selected contemporary research topic from research

	and review articles, discussion on the critical knowledge of selected contemporary research topics from research and review publications in neuroscience and concept paper preparation.
1	Student performance is not sufficient to pass since 80% of assignment were not completed on discussion on literature review of selected contemporary research topic from research and review articles, discussion on the critical knowledge of selected contemporary research topics from research and review publications in neuroscience and concept paper preparation.

Rubric for evaluation of concept paper (total score = 70)

Criteria	Excellent (Score = 10)	Adequate (Score = 7)	Mediocre (Score = 4)	Incompetent (Score = 0)
Introduction, background, and rationale of the research	Interesting introduction with strong and firm background supporting research proposal.	A well-formulated introduction with plausible background and rationale of the study is presented.	The introduction is mentioned with a loosely constructed background and weak rationale.	Absence of understandable introduction, background, or rationale.
Research question and objective	The compelling research question is presented with a clearly-stated objective of study.	The reasonable research question is presented and well-related to the research objective.	The research question is not interesting and the objective of the study is not strongly related to the question.	The research question and objective of the study are not mentioned and/or not related to neuroscience.
Research hypothesis	The conceivable hypothesis is formulated with a strong relationship with the research question.	The hypothesis is stated and can be related to the research question.	The hypothesis is not mentioned and not based on the research question.	The hypothesis is not mentioned.
Literature review	Related studies are in-depth reviewed and supportive of the proposal, with multiple theories and research	Most of the past related studies are reviewed, with relevant theories are presented to support the	A review of recent studies is not fully relevant and does not present sufficient theories to support the	Investigation of previous related studies is not presented or is disorganized manner.

	approaches are described.	proposal.	proposal.	
Methodology	Novel and well-designed methods are proposed with a robust relationship with research objectives. Human/animal ethical considerations have been approved.	Traditional methods that are related to research objectives are presented in detail. Human/animal ethical considerations have been approved.	Proposed methods are not fully related to research objectives, and not clearly described. Human/animal ethical considerations have not been approved	Proposed methods are not linked with research objectives, and do not lead to any results. Ethical issues are not resolved.
References	Proper references and in-text citations are given with appropriate citation format.	References and in-text citations are mostly given. The citation format is correct in general with some minor mistakes.	Some references or in-text citations are missed.	References and in-text citations are lacking.
Writing proficiency	Remarkably well-written proposal with no or very few grammatical errors.	The proposal book shows a good writing system with some grammatical errors.	The proposal book has many grammatical errors and needs major language revision.	The proposal does not write in English or does not write an incomprehensible manner.

Guideline and evaluation criteria for the presentation session

Criteria	Excellent (score = 5)	Very good (score = 4)	Adequate (score = 3)	Limited (score = 2)	Poor (score = 1)
Information quality and organization of the topic presented (including answering the	The main points are explicitly presented with impressive detail and organization.	The main points are presented with a good amount of detail. Information is well-organized	The main points are somewhat clear but could add some more detail.	The main points are not clear and lack detail. Information is loosely organized and	Main points are missed and have no detail. Information is disorganized and off-topic.

questions)	Information is directly linked to the topic of the presentation.	and linked to the topic given.	Information is organized and linked to the topic given.	some are off-topic.	
Verbal communication and English language proficiency	Speaker's voice is very steady, clear, and confident. Spoken language is very fluent and grammatically corrected.	Speaker's voice is steady and confident. Spoken language is fluent and mostly grammatically corrected.	Speaker's voice is moderately confident but could be developed. Spoken language is mediocre and has some grammatical errors.	Speaker's voice is unsteady and lacks confidence. The use of spoken language needs to be improved, and many errors can be recognized.	Speaker fails to deliver a proper presentation orally. Unable to deliver presentation via spoken English language.
Non-verbal communication	Speaker appears to be comfortable and confident. Effective uses of eye contact and gestures are presented to support the presentation.	Speaker appears to be fairly confident. Eye contacts and gestures are generally used.	Speaker appears to be generally at ease. The moderate use of eye contact and gesture but not very effective.	The speaker appears uneasy, insecure, or panicked. Eye contact and gesture are rarely used.	Speaker is uncomfortable with the presentation. No eye contact or gesture is presented.
Visual tools	Visual aids are very creative, easy to read, and greatly enhance the presentation.	Visual aids are typically clear and easy to follow.	Visual aids are good in terms of quality, but some points can be improved.	Limited visual aids are used or difficult to help audiences follow the topic.	No visual aids are used, and the presentation is not interested to audiences.