Course Code and Course Title	Thai วทนว ๒๖๑ ชีวฟิสิกส์พื้นฐาน English SCIN 261 Fundamental biophysics
Number of Credits	**2** (2-0-4) (Lecture 2 hours – Laboratory 0 hour/week - Self-Study 4 hours/ week)
Curriculum and Course Type	Program of Study Bachelor's Degree Program in Science and Technology (International Program, Multidisciplinary Program) Course Type Major Course
Course Coordinator	Assoc. Prof. Wannapong Triampo, Ph.D. Address: Department of Physics, Faculty of Science, Mahidol University 272 Rama VI Road, Ratchathewi District, Bangkok 10400, THAILAND Tel. 02-201-5770-1 e-mail: wtriampo@gmail.com, wannapong.tri@mahidol.edu
Semester/Year of Study	Academic Year 2023 Second Year
Prerequisite	None
Co-requisite	None
Day/Time/Study Site Location	Wednesday / 10.30-12.30 Faculty of Science, Mahidol University, Salaya Campus (ONLINE)
Date of Latest Revision	August 2023

Course Learning Outcomes (CLOs)

After successful completion of this course, students will be able to:

After successful completion of this course, students will be able to:

1) CLO1 Explain concepts and principles of biophysical systems
2) CLO2 Elaborate a model of a biophysical phenomena
3) CLO3 Solve the mathematics necessary to construct a model of a biophysical phenomena
4) CLO4 Critique the results of a model of a biophysical phenomena
5) CLO5 Apply models to solve problems and applications

Course Description:

Biophysics concepts. Molecular and cellular aspects of biological systems. Physics principles of biological molecules, living systems and life processes. Neuro-biophysics. Mathematical, statistical and analytical approaches for quantitative study of living systems and life processes

Credit hours / trimester

Lecture (Hours)	Additional class (Hours)	Laboratory/field trip/internship (Hours)	Self- study (Hours)

30 hours (2 hours x 15 weeks)	-		60 hours (4 hour/ 15 weeks)

Number of hours that the lecture provides individual counseling and guidance

1 hour / week or student requirement during prescribed date and time

Evaluation of the CLOs

Learning Measurement and Evaluation

A. Formative Assessment

Quiz & feedback for all CLOs with weight 40% (of total weight)

B. Summative Assessment

(1) Evaluation Methods and Weight

Course Learning Outcomes	Evaluation Strategies			Weight (%)
	Class Attendance, Participation and Behavior in Class	Written Exam	Class Project Executed without Plagiarism	
CLO1	5%	10%	-	15%
CLO2	5%	10%	-	15%
CLO3	5%	10%	15%	30%
Total	**15%**	**30%**	**15%**	**60%**

Note: Students have the right to request a review of a grade and appeal evaluation decisions

(Mahidol University Disciplinary Measures 2010)

Measurement and evaluation

After completion of the evaluation process each student is assigned a criterion-referenced grade (as shown in the table below). Evaluation and achievement will be justifying according to Faculty and University code, conducted by grading system of A, B+, B, C+, C, D and F. To pass this course, student must earn a grade of a least D.

The tentative Grade evaluation

Total Percentage of Evaluation	Below 50	50-54.99	55-59.99	60-64.99	65-69.99	70-74.99	75-79.99	80-100
Grade	F	D	D+	C	C+	B	B+	A

Teaching staff:

Code	Name	Email
WT	Wannapong Triampo R3/1- SC 3 Building N (MUSC-Salaya)	wtriampo@gmail.com, wannapong.tri@mahidol.edu

Teaching Schedule 1st Semester of Academic Year 2022

Week	Topic	Hours			Teaching methods/ multimedia	Instructor
		Lecture	Labo a-tory	Self-study		
1 9 Aug	Introduction of course discipline and class orientation. What is Biophysics?	2	0	4	Active lecture	**Wannapong** Triampo
2 16 Aug	What is Biophysics?	2	0	4	Active lecture	**Wannapong** Triampo
3 23 Aug	Molecular and cellular aspects of biological systems.	2	0	4	Group discussion Active lecture	**Wannapong** Triampo
4 30 Aug	Molecular and cellular aspects of biological systems.	2	0	4	Active lecture	**Wannapong** Triampo
5 6 Sep	Physics principles of biological molecules, living systems and life processes.	2	0	4	Active lecture	**Wannapong** Triampo
6 13 Sep	Physics principles of biological molecules, living systems and life processes.	2	0	4	Group discussion Active lecture	**Wannapong** Triampo
7 20 Sep	Physics principles of biological molecules, living systems and life processes.	2	0	4	Active lecture	**Wannapong** Triampo
8 27 Sep	Physics principles of biological molecules, living systems and life processes.	2	0	4	Active lecture	**Wannapong** Triampo
9 **4 Oct**	**Midterm examination**					
10 11 Oct	Neuro-biophysics.	2	0	4	Group discussion Active lecture	**Wannapong** Triampo
11 18 Oct	Neuro-biophysics.	2	0	4	Group discussion Active lecture	**Wannapong** Triampo
12 25 Oct	Mathematical, statistical and analytical approaches for quantitative study of living systems and life processes.	2	0	4	Group discussion Active lecture	**Wannapong** Triampo

Week	Topic	Hours			Teaching methods/ multimedia	Instructor
		Lecture	Labo a-tory	Self-study		
13 1 Nov	Mathematical, statistical and analytical approaches for quantitative study of living systems and life processes.	2	0	4	Active Lecture, Group discussion	**Wannapong** Triampo
14 8 Nov	Mathematical, statistical and analytical approaches for quantitative study of living systems and life processes.	2	0	4	Active Lecture, Group discussion	**Wannapong** Triampo
15 15 Nov	Applications of biophysics	2	0	4	Active Lecture, Project-based learning	**Wannapong** Triampo
16 22 Nov	Applications of biophysics	2	0	4	Active Lecture, Project-based learning	**Wannapong** Triampo
17 29 Nov	**Final examination**					

Teaching Materials and Resources

Rodney Cotterill (2011). Biophysics: An Introduction. John Wiley & Sons;