



School of Bioinnovation and Bio-based Product Intelligence (SCIN)
 Program in Bioinnovation (International Program, Multidisciplinary Program)
 Course: SCIN 394 Senior Project in Bioinnovation I

Degree Bachelor Master Doctoral
 Faculty of Science

Course Code and Course Title	English: SCIN 394 Senior Project in Bioinnovation I Thai: วิชา ๓๙๔ โครงการศึกษาระดับพิเศษ ๑
Number of Credits	3 (0-9-3)
Curriculum and Course Type	Program of Study Bachelor's Degree Program in Science and Technology (International Program, Multidisciplinary Program) Course Type Specific Course
Course Coordinator	Tatpong Tulyananda, Ph.D Address: School of Bioinnovation & Bio-based Product Intelligence, SC1-308 Faculty of Science, Mahidol University, Salaya Tel: 0-2201-5000 email: tatpong.tul@mahidol.edu
Semester/Year of Study	Second semester (2/2019) / 3 rd Year
Prerequisite	None
Co-requisite	None
Day/Time/Study Site Location	Thursday SC1-354B Faculty of Science, Mahidol University, Salaya Campus
Date of Latest Revision	19 Jan 2021

Course Learning Outcomes (CLOs)

After successful completion of this course, students are able to

- CLO 1 Learn philosophy and concepts of research and the creation of research innovation.
- CLO 2 Understand methodology, type of research, research procedures, research instruments, research question, background and hypothesis.
- CLO 3 Be able to plan research and research write proposal.
- CLO 4 Understand risk assessment and risk management for research.
- CLO 5 Can conduct research.
- CLO 6 Can conclude and answer research question. Be able to do scientific research presentation.

Objectives of Development / Revision

First revision

Course Description

Philosophy and concepts of research and the creation of research innovation; methodology; type of research; research procedures; research instruments; research question; background and hypothesis; research planning; risk assessment and risk management for research; research proposal writing; scientific research presentation



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Credit Hours / Trimester

Theory (Hours)	Addition Class (Hours)	Laboratory/Field trip/ Internship (Hours)	Self-study (Hours)
-	-	135 Hours/Semester (9 Hours x 15 Weeks)	45 Hours/Semester (3 Hours x 15 Weeks)

Number of Hours per Week for Individual Advice

By appointment at Faculty of Science, Mahidol University, Salaya Campus or online

Evaluation of the CLOs

Course Learning Outcomes	Measurement Method			Weight (%)
	Class Attendance, Participation and Behavior in Class	Written Exam	Home work/Project	
CLO1 Learn philosophy and concepts of research and the creation of research innovation	-	-	5%	5%
CLO2 Understand methodology, type of research, research procedures, research instruments, research question, background and hypothesis	-	-	5%	5%
CLO3 Be able to plan research and research write proposal	-	-	25%	25%
CLO4 Understand risk assessment and risk management for research	5%	-	-	5%
CLO5 Can conduct research	40%	-	-	40%
CLO6 Can conclude and answer research question. Be able to do scientific research presentation	-	10%	10%	20%
Total	-	-	100%	100%

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.

Total Percentage of Evaluation	Below 50	50-54	55-59	60-64	65-69	70-74	75-79	80-100
Grade	F	D	D+	C	C+	B	B+	A



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SCIN 394 Senior Project in Bioinnovation I 3 (0-9-3)

Week	Date	Topic	Hour		Instructor
			Lecture	Lab	
1	19 Jan	Introduction	0	9	Dr. Tatpong Tulyananda
	26 Jan	No class			
2	2 Feb	Philosophy and concept of research	0	9	Dr. Tatpong Tulyananda
3	9 Feb	Research proposal planning	0	9	
4	16 Feb	Methodology and research procedure	0	9	
5	23 Feb	Research idea discussion I	0	9	
6	2 Mar	Research idea discussion II	0	9	
7	9 Mar	Conducting preliminary experiment	0	9	TBA
8	16 Mar		0	9	
Midterm examination (15-19 Mar)					
9	23 Mar	Conducting preliminary experiment	0	9	TBA
10	30 Mar		0	9	
11	6 Apr		0	9	
12	13 Apr		0	9	
13	20 Apr		0	9	
14	27 Apr		0	9	
15	4 May	Final Presentation	0	9	Dr. Tatpong Tulyananda
Final examination (10-21 May)					