



School of Bioinnovation and Bio-based Product Intelligence (SCIN)  
 Program in Bioinnovation (International Program, Multidisciplinary Program)  
 Course: SCIN 494 Senior Project in Bioinnovation II

Degree  Bachelor  Master  Doctoral  
 Faculty of Science

<b>Course Code and Course Title</b>	English: SCIN 494 Senior Project in Bioinnovation II Thai: วิชา ๔๙๔ โครงการศึกษาระดับพิเศษ ๒
<b>Number of Credits</b>	3 (0-9-3)
<b>Curriculum and Course Type</b>	Program of Study Bachelor's Degree Program in Science and Technology (International Program, Multidisciplinary Program) Course Type Specific Course
<b>Course Coordinator</b>	Tatpong Tulyananda, Ph.D Address: School of Bioinnovation & Bio-based Product Intelligence, SC1-308 Faculty of Science, Mahidol University, Salaya Tel: 0-2201-5708 email: tatpong.tul@mahidol.edu
<b>Semester/Year of Study</b>	4th Year
<b>Prerequisite</b>	SCIN 394
<b>Co-requisite</b>	None
<b>Day/Time/Study Site Location</b>	Google Classroom
<b>Date of Latest Revision</b>	10 July 2021

**Course Learning Outcomes (CLOs)**

After successful completion of this course, students are able to

- CLO 1 Can design and conduct innovative research project
- CLO 2 Can analyze research instrumental and key technology
- CLO 3 Be able to collect data and analysis
- CLO 4 Discuss and evaluate research results
- CLO 5 Can prepare a proper research presentation as well as a research article draft

**Objectives of Development / Revision**

First revision

**Course Description**

Planning and proceeding for a case study of research in bioinnovation; research instrumental analysis and key technology; data collection and analysis; results evaluation and discussion; research writing; research presentation

**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 SC1-308 Faculty of Science, Mahidol University, Salaya Campus

**Evaluation of the CLOs**

Course Learning Outcomes	Measurement Method			Weight (%)
	Class Attendance	Written Exam	Research Project	



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<b>CLO1</b>	Can design and conduct innovative research project	-	-	5%	5%
<b>CLO2</b>	Can analyze research instrumental and key technology	-	-	5%	5%
<b>CLO3</b>	Be able to collect data and analysis	-	-	25%	25%
<b>CLO4</b>	Discuss and evaluate research results	-	-	35%	35%
<b>CLO5</b>	Can prepare a proper research presentation as well as a research article draft	-	-	30%	30%
<b>Total</b>		-	-	<b>100%</b>	<b>100%</b>

### 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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### Teaching Schedule 2nd Semester of Academic Year 2021

Week	Note	Topic	Hour		Instructor
			Lecture	Lab	
1		Introduction	0	9	Dr. Tatpong Tulyananda
2		Research proposal	0	9	
3		Research report I	0	9	
4		Research report II	0	9	
5		Conducting experiment, report drafting	0	9	TBA
6			0	9	
7			0	9	
8			0	9	
<b>Midterm examination (no exam)</b>					
10		Conducting experiment, report drafting	0	9	TBA
11			0	9	
12			0	9	
13			0	9	
14			0	9	
15			0	9	
16		Final discussion	0	9	Dr. Tatpong Tulyananda
<b>Final examination (no exam)</b>					