Course Code and Course Title	English SCIN 292 Bioinnovation in Food Industry Thai วทนว ๒๙๒ ชีวนวัตกรรมในอุตสาหกรรมอาหาร
Number of Credits	2 (2-0-4)
Curriculum and Course Type	Program of Study Bachelor's Degree Program in Science and Technology (International Program, Multidisciplinary Program) Course Type Major Elective Course
Course Coordinator	Asst. Prof. Teerarat Likitwattanasade, Ph.D Address: Department of Biotechnology, Faculty of Science, Mahidol University Tel: 0917712946 email: teerarat.lik@mahidol.edu Asst. Prof. Siriyupa Netramai, Ph.D Address: School of Bioinnovation and Bio-based Product Intelligent, Faculty of Science, Mahidol University Tel: n/a email: siriyupa.net@mahidol.edu
Semester/Year of Study	Academic Year 2026 Second Semester (1/2026) / Third Year
Prerequisite	None
Co-requisite	None
Day/Time/Study Site Location	Monday / 1.30PM-3.30PM / Online/On campus SC1-158, Faculty of Science, Mahidol University, Salaya Campus / Zoom
Google Classroom Link	
Google Classroom Code	
Date of Latest Revision	16 July 2026

Course Learning Outcomes (CLOs)

After successful completion of this course, students are able to

1. Explain concepts of bio- and food innovation
2. Discuss the importance of bio- and food innovation in various aspects related to the food industry
3. Apply specific innovation to given problems and/or challenges related to the food industry

Objectives of Development / Revision

To revise for the new academic year

Course Description

Bioinnovation in food industry for better quality of life; food innovation for food security and food safety; food innovation in food industry and related fields; innovation for quality control of raw materials; processing aids in bioprocess production; innovation in food seasoning; food ingredients, bioactive compounds and food molecules; products improvement; biostability of food products; innovation in food bioformulation;

important of food innopolis for society and economy (market share, production efficiency, reduce production cost, food-innovation specialist); innovation in law and regulations for bioinnovation in food industry.

Credit Hours / Trimester

Theory (Hours)	Addition Class (Hours)	Laboratory/Field trip/ Internship (Hours)	Self-study (Hours)
30 Hours/Semester (2 Hours x 15 Weeks)	-	-	60 Hours/Semester (4 Hours x 15 Weeks)

Number of Hours per Week for Individual Advice

2 hours per week or student requirement during the prescribed date and time

Evaluation of the CLOs

Course Learning Outcomes		Measurement Method			Weight (%)
		Class Attendance, Participation and Behavior in Class	Written Exam	Class Project	
CLO1	Explain concepts of bio- and food innovation	-	15%	5%	20%
CLO2	Discuss the importance of bio- and food innovation in various aspects related to the food industry	5%	20%	10%	35%
CLO3	Apply specific innovation to given problems and/or challenges related to the food industry	5%	30%	10%	45%
	Total	**10%**	**65%**	**25%**	**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 determined according to the Faculty and University codes and graded on a scale of A, B+, B, C+, C, D, and F. To pass this course, students must earn a grade of at least D.

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 Schedule 1st Semester of Academic Year 2026

Week	Date	Topic	Number of Hours		Instructor
			Lecture	Laboratory	
1	Aug 3, 2026	Course introduction Introduction to Bioinnovation in Food	2	0	Asst. Prof. Teerarat Likitwattanasade
2	Aug 10, 2026	Food security and sustainability	2	0	Asst. Prof. Siriyupa Netramai
3	Aug 17, 2026	Current status of innovation in raw materials: Impact on the food industry	2	0	Assoc. Prof. Kanyaratt Supaibulwatana
4	Aug 24, 2026	Novel technology for food production	2	0	Asst. Prof. Teerarat Likitwattanasade
5	Aug 31, 2026	Sensory science for innovation in the food industries	2	0	Asst. Prof. Teerarat Likitwattanasade
6	Sep 7, 2026	Quality control and innovation for quality improvement in the food industry	2	0	Dr. Thitisilp Kijchavengkul
7	Sep 14, 2026	Law and regulations on bioinnovation in food industry	2	0	Dr. Thitisilp Kijchavengkul
8	Sep 21, 2026	Smart and active bio-packaging	2	0	Asst. Prof. Siriyupa Netramai
Midterm examination (Sep 28 – Oct 2, 2026)					
9	Oct 12, 2026	Flavor science and technology	2	0	Assoc. Prof. Sittiwat Lertsiri
10	Oct 19, 2026	Functional foods and health claim	2	0	Asst. Prof. Teerarat Likitwattanasade
11	Oct 26, 2026	Food supplement for health and wellness	2	0	Dr. Papasara Chantawichitwong
12	Nov 2, 2026	Food biosensors	2	0	Asst. Prof. Teerakiat Kerdcharoen
13	Nov 9, 2026	Alternative proteins	2	0	Asst. Prof. Teerarat Likitwattanasade
14	Nov 16, 2026	Business & commercialization of bioinnovation	2	0	Asst. Prof. Siriyupa Netramai
15	Nov 23, 2026	Food innovation for industry and research (Reading assignment, student group presentation, and discussion)	2	0	Asst. Prof. Teerarat Likitwattanasade
Final examination (Nov 30 - Dec 11, 2026)					

* Monday 1.30PM-3.30PM, Online/On campus Faculty of Science, Mahidol University, Salaya Campus