



School of Bioinnovation and Bio-based Product Intelligence (SCIN)
Program in Bioinnovation (International Program, Multidisciplinary Program)
Course: SCIN 291 Food and Agri-technology for Urbanization

Degree Bachelor Master Doctoral
Faculty of Science

Course Code and Course Title	English SCIN 291 Food and Agri-technology for Urbanization Thai วิชา ๒๙๑ เทคโนโลยีการอาหารและการเกษตรเพื่อความเป็นเมือง
Number of Credits	3 (3-0-6)
Curriculum and Course Type	Program of Study Bachelor's Degree Program in Science and Technology (International Program, Multidisciplinary Program) Course Type Core course
Course Coordinator	Thitisilp Kijchavengkul, Ph.D. Address: School of Bioinnovation and Bio-based Intelligence, Room SC1-306 Faculty of Science Building 1, Mahidol University, Salaya Campus Tel: 090-986-5764 email: thitisilp.kij@mahidol.edu
Semester/Year of Study	Academic Year 2024 First Semester (1/2024) / Second Year
Prerequisite	None
Co-requisite	None
Day/Time/Study Site Location	Thursday / 09.30 AM.-12.30 PM. SC1-154 Faculty of Science, Mahidol University, Salaya Campus
Date of Latest Revision	16 July 2024

Course Learning Outcomes (CLOs)

After successful completion of this course, students are able to

1. Associate current global changes and/or problems with urbanization or climate change
2. Explain concepts of sustainability and food security.
3. Apply appropriate sustainable technology and/or innovation to particular problems related to urbanization or climate changes

Objectives of Development / Revision

To propose the new program.

Course Description

Urbanization and modernization; climate changes and limitation of agricultural farm land; food security; Increasing quality and productivity of food and agricultural products supplied for urbanization; precision agriculture; urban farming; dynamic innovation in agriculture and food technologies.



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Credit Hours / Trimester

Theory (Hours)	Addition Class (Hours)	Laboratory/Field trip/ Internship (Hours)	Self-study (Hours)
45 Hours/Semester (3 Hours x 15 Weeks)	-	-	90 Hours/Semester (6 Hours x 15 Weeks)

Number of Hours per Week for Individual Advice

3 hours per week or student requirement during 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 Associate current global changes and/or problems with urbanization or climate change.	5%	15%	10%	30%
CLO2 Explain concepts of sustainability and food security.	-	15%	10%	25%
CLO3 Apply appropriate sustainable technology and/or innovation to particular problems related to urbanization or climate changes.	5%	30%	10%	45%
Total	10%	60%	30%	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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Teaching Schedule 1st Semester of Academic Year 2024

Week	Date	Topic	Number of Hours		Instructor
			Lecture	Laboratory	
1	8 Aug 24	Course introduction Urbanization and modernization	3	0	Thitisilp Kijchavengkul, Ph.D.
2	15 Aug 24	Limitation of agricultural farmland	3	0	Thitisilp Kijchavengkul, Ph.D.
3	22 Aug 24	Climate change	3	0	Thitisilp Kijchavengkul, Ph.D.
4	29 Aug 24	Sustainability I	3	0	Thitisilp Kijchavengkul, Ph.D.
5	5 Sep 24	Sustainability II	3	0	Thitisilp Kijchavengkul, Ph.D.
6	12 Sep 24	Food security	3	0	Asst. Prof. Siriyupa Netramai, Ph.D.
	TBA*	Open-book examination			
7	19 Sep 24	Increasing quality and productivity of food and agricultural products supplied for urbanization I	3	0	Asst. Prof. Siriyupa Netramai, Ph.D.
8	26 Sep 24	Increasing quality and productivity of food and agricultural products supplied for urbanization II	3	0	Asst. Prof. Siriyupa Netramai, Ph.D.
9	10 Oct 24	Increasing quality and productivity of food and agricultural products supplied for urbanization III	3	0	Asst. Prof. Siriyupa Netramai, Ph.D.
10	17 Oct 24	Precision agriculture	3	0	Asst. Prof. Watcharra Chintakovid, Ph.D.
11	24 Oct 24	Artificial environment and microclimate technology	3	0	Asst. Prof. Watcharra Chintakovid, Ph.D.
12	31 Oct 24	Dynamic innovation in agriculture and food technologies I	3	0	Asst. Prof. Siriyupa Netramai, Ph.D.
13	7 Nov 24	Dynamic innovation in agriculture and food technologies II	3	0	Asst. Prof. Siriyupa Netramai, Ph.D.
14	14 Nov 24	Dynamic innovation in agriculture and food technologies III	3	0	Thitisilp Kijchavengkul, Ph.D.
15	21 Nov 24	Dynamic innovation in agriculture and food technologies III	3	0	Thitisilp Kijchavengkul, Ph.D.
Final examination (2 - 13 December, 2024)					

*To be announced