Course Code and Course Title	English SCIN 291 Food and Agri-technology for Urbanization Thai วทนว 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	Asst. Prof. Teerarat Likitwattanasade, Ph.D Address: Department of Biotechnology, Faculty of Science, Mahidol University Tel: 0917712946 email: teerarat.lik@mahidol.edu Associate Professor Kanyaratt Supaibulwatana Address: School of Bioinnovation and Bio-based Product Intelligence Faculty of Science, Mahidol University Tel: 022015303 email: kanyarat.sup@mahidol.edu
Semester/Year of Study	Academic Year 2026 First Semester (1/2026) / 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
Google Classroom Link	
Google Classroom Code	
Date of Latest Revision	15 July 2026

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 revise for the new academic year

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.

Credit Hours / Trimester

Theory (Hours)	Addition Class (Hours)	Laboratory/Field trip/ Internship (Hours)	Self-study (Hours)
48 Hours/Semester (3 Hours x 16 Weeks)	-	-	96 Hours/Semester (6 Hours x 16 Weeks)

Number of Hours per Week for Individual Advice

3 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 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 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 6, 2026	Course introduction: Urbanization and modernization, Global changes and urban vulnerability, Food security in megacities	3	0	Asst. Prof. Teerarat Likitwattanasade
2	Aug 13, 2026	Climate Changes and its Impacts on Agriculture	3	0	Dr. Thitisilp Kijchavengkul
3	Aug 20, 2026	Limitation of agricultural farmland	3	0	Dr. Thitisilp Kijchavengkul
4	Aug 27, 2026	Sustainability	3	0	Dr. Thitisilp Kijchavengkul
5	Sep 3, 2026	Vertical farming	3	0	Dr. Wilas Chamlertwat
6	Sep 10, 2026	Food security	3	0	Asst. Prof. Dr. Siriyupa Netramai
7	Sep 17, 2026	Precision agriculture	3	0	Asst. Prof. Dr. Watcharra Chintakovid
8	Sep 24, 2026	Artificial environment and microclimate technology	3	0	Asst. Prof. Dr. Watcharra Chintakovid
Midterm examination (Sep 28 – Oct 1, 2026)					
9	Oct 8, 2026	Increasing quality and productivity of food and agricultural products supplied for urbanization	3	0	Asst. Prof. Teerarat Likitwattanasade
10	Oct 15, 2026	Dynamic innovations in agriculture and food technologies I	3	0	Asst. Prof. Teerarat Likitwattanasade
11	Oct 22, 2026	Dynamic innovations in agriculture and food technologies II	3	0	Asst. Prof. Teerarat Likitwattanasade
12	Oct 29, 2026	Waste management and circular economy in food	3	0	Asst. Prof. Teerarat Likitwattanasade
13	Nov 5, 2026	AgTech startup ecosystem and innovative food agri-business models	3	0	Asst. Prof. Dr. Siriyupa Netramai
14	Nov 12, 2026	Food supply chain and urban fresh food logistics	3	0	Invited speaker
15	Nov 19, 2026	Final project presentation: Applying innovation to urban problems	3	0	Asst. Prof. Teerarat Likitwattanasade
16	Nov 26, 2026	Field trip - Urban farming in practice & sustainable food systems	3	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