



Course Syllabus (Academic Year 2020)

School of Interdisciplinary Studies, Kanchanaburi Campus, Mahidol University

1. **Course No. and Title** : KAAG 217 Mushroom production
Credit (study hours) : 3 (2-3-5)
2. **Program Name** : Bachelor of Science Program in Agricultural Science
3. **Course Module** : Major Elective course
Pre/co-requisite : no
4. **Class Semester** : 1st Semester 2nd Semester Academic Year 2020
5. **Class Schedule & Venue** : Online class via WebEx and class room, Lecture 10:00 – 12:00,
 Room xxxx, Lecture Building
 Laboratory 13:00 – 16:00, Mushroom Laboratory Building, Room L-103 and L-206
6. **Class Coordinator** : Dr. Prapapan Sawhasan Chuthamas
 Email: prapapan.saw@mahidol.ac.th

7. Course Description

Biology of mushrooms, nutrients requirement, suitable factors for mushroom growth; the cultivation of economic, winter and medicinal mushroom in plastic bags, in logs; mushroom pests; management of mushroom farm; entrepreneur mindset, altruism and ethics

8. Course Objectives / Course Learning Outcomes (CLOs)

No.	Objectives / CLOs	Expected Skills / Knowledge			PLOs
		Specific	Generic	Knowledge	
8.1	Determine the important species of cultivated mushrooms and knows the basic ways of the cultivation of each of them	SS2 Cultivation Skill		√	1, 3
8.2	Determine techniques used in the culture of edible mushrooms	SS2 Cultivation Skill	GS2 Analytical thinking skill GS6 Decision making skill	√	1, 3

8.3	Demonstrate agar media and pure cultures preparation of edible mushrooms	SS1 Scientific Skill	GS8 Experimental skill	√	3
8.4	Demonstrate a strong team work and good ethics		GS15 Moral and ethics		4, 5

9. Class Instructor List

- 9.1 Name: Assoc. Prof. Dr. Taworn Vinijsanun Email: sctwn@mahidol.ac.th
- 9.2 Name: Dr. Prapapan Sawhasan Chuthamas Email: prapapansaw@gmail.com
- 9.3 Name: Dr. Netiya Karaket Email: netiya.kar@mahidol.ac.th
- 9.4 Mr. Metee Vibulkeaw Email: metee.vib@mahidol.ac.th
- 9.5 Miss Phirata Khunoad Email: phirata.khu@mahidol.ac.th

10. Course Outline

Week	Date	Contents	CLOs	Teaching & Learning	Instructor's Names
1	1 Oct 2020	<u>Lecture</u> : Mushroom cultivation history and fungal identification	1, 3, 5	Lecture, Q&A (Online class via WebEx and class room)	Taworn Vinijsanun,
		<u>Laboratory</u> : preparing agar media and culturing mushroom mycelium on agar media		Practice, Lab report	Taworn Vinijsanun Metee Vibulkeaw
2	5 Oct 2020	<u>Lecture</u> : Mushroom biology and nutritional requirement for mushroom growth	1, 3, 5	Lecture, Q&A (Online class via WebEx and class room)	Taworn Vinijsanun
		<u>Laboratory</u> : Generating grain spawn		Practice, Lab report	Taworn Vinijsanun Metee Vibulkeaw
3	8 Oct 2020	<u>Lecture</u> : Oyster mushroom cultivation	1, 3, 5	Lecture, Q&A (Online class via WebEx and class room)	Taworn Vinijsanun
		<u>Laboratory</u> : Mushroom compost preparation		Practice, Lab report	Taworn Vinijsanun Metee Vibulkeaw
4	12 Oct	<u>Lecture</u> : Abalone mushroom cultivation	1, 3, 5	Lecture, Q&A (Online class via	Taworn Vinijsanun

	2020			WebEx and class room)	
		<u>Laboratory:</u> Creating sawdust spawn bag and inoculation		Practice, Lab report	Taworn Vinijsanun Metee Vibulkeaw
5	15 Oct 2020	<u>Lecture:</u> Shiitake mushroom cultivation	1, 3, 5	Lecture, Q&A (Online class via WebEx and class room)	Taworn Vinijsanun
		<u>Laboratory:</u> Oyster mushroom cultivation		Practice, Lab report	Taworn Vinijsanun Metee Vibulkeaw
6	19 Oct 2020	<u>Lecture:</u> commercial and medicinal mushroom	1, 3, 5	Lecture, Q&A	Prapapan Sawhasan Chuthamas
		<u>Laboratory:</u> bamboo mushroom cultivation		Practice, Lab report	Prapapan Sawhasan Chuthamas Metee Vibulkeaw
7	22 Oct 2020	<u>Lecture:</u> <i>Cordyceps militaris</i> cultivation	1, 3, 5	Lecture, Q&A	Prapapan Sawhasan Chuthamas
		<u>Laboratory:</u> <i>Cordyceps militaris</i> cultivation (L-103)		Practice, Lab report	Prapapan Sawhasan Chuthamas Metee Vibulkeaw
8	Mid-term Examination (28 October 2019)				
9	29 Oct 2020	<u>Lecture:</u> Wild mushroom and poisonous mushroom	1, 3, 5	Lecture, Q&A	Prapapan Sawhasan Chuthamas
		<u>Laboratory:</u> Wild mushroom collection, identification and specimen preparation cultivation		Practice, Lab report	Prapapan Sawhasan Chuthamas Metee Vibulkeaw
10	2 Nov 2020	<u>Lecture:</u> Winter mushroom cultivation	1, 3, 5	Lecture, Q&A (Online class via WebEx and class room)	Taworn Vinijsanun
		<u>Laboratory:</u> Yanagi Mutsutake mushroom cultivation		Practice, Lab report	Taworn Vinijsanun Metee Vibulkeaw
11	5 Nov	<u>Lecture:</u> White button mushroom cultivation	1, 3, 5	Lecture, Q&A (Online class via	Taworn Vinijsanun

	2020			WebEx and class room)	
		<u>Laboratory:</u> White button mushroom cultivation		Practice, Lab report	Taworn Vinijsanun Metee Vibulkeaw
12	9 Nov 2020	<u>Lecture:</u> Jaw's Ear mushroom cultivation	1, 3, 5	Lecture, Q&A (Online class via WebEx and class room)	Taworn Vinijsanun
		<u>Laboratory:</u> Jaw's Ear mushroom cultivation on log		Practice, Lab report	Taworn Vinijsanun Metee Vibulkeaw
13	12 Nov 2020	<u>Lecture:</u> Straw mushroom cultivation	1, 3, 5	Lecture, Q&A (Online class via WebEx and class room)	Taworn Vinijsanun
		<u>Laboratory:</u> Straw mushroom		Practice, Lab report	Taworn Vinijsanun Metee Vibulkeaw
14	19 Nov 2020	<u>Lecture:</u> Analysis important substances in mushrooms	1, 3, 5	Lecture, Q&A	Netiya Karaket
		<u>Laboratory:</u> Analysis of cordycepin and adenosine of <i>Cordyceps militaris</i> by HPLC (L-206)		Practice, Lab report	Netiya Karaket Phirata Khunoad Metee Vibulkeaw
15	23 Nov 2020	<u>Lecture:</u> Mushroom farming and mushroom enemies/ Mushroom processing for cosmetic and pharmaceutical industries	1, 3, 5	Lecture, Q&A (Online class via WebEx and class room)	Taworn Vinijsanun
		<u>Laboratory:</u> Mushroom recipes		Practice, Lab report	Taworn Vinijsanun Prapapan Sawhasan Chuthamas Metee Vibulkeaw
16	26 Nov 2020	Selected Topic Presentation and Discussion	1, 3, 4, 5	Presentation, Q&A, Group discussion, Report	Taworn Vinijsanun Prapapan Sawhasan Chuthamas
17	Final Examination/Laboratory exam (30 November 2020)				

11. Course Assessment

No.	Methods / Activities	Regulations	CLOs	Week	Weight Distribution (%)
11.1	Mid-term exam	examination for 3 hours (knowledge of 1 st to 8 th week)	1, 3	9	35
11.2	Final exam	examination for 3 hours (knowledge of 10 th to 16 th week)	1, 3	17	35
11.3	Presentation /Reports	will be announced in the class	1, 3, 4	16	10
11.4	Laboratory exam	will be announced in the class	3	17	5
11.5	Lab Reports	will be announced in the class	1, 4	every week	10
11.6	Class participation	will be announced in the class	5	every week	5
				Total	100

12. Grading System

Criterion-referenced evaluation

Grade	Score	Grade	Score	Grade	Score	Grade	Score
A	≥ 80 %	B	70 – 74.99%	C	60 – 64.99%	D	50 – 54.99%
B+	75 – 79.99%	C+	65 – 69.99%	D+	55 – 59.99%	F	< 50 %

Norm-referenced evaluation

*If use both criterion and norm-referenced evaluation, please tick two boxes.

13. References

13.1 ดีพร้อม ไชยวงศ์เกียรติ. 2520. การเพาะเห็ดและเห็ดบางชนิดในประเทศไทย. อักษรสยามการพิมพ์ กรุงเทพฯ

13.2 วีระศักดิ์ ศักดิ์ศิริรัตน์. 2529. การผลิตเห็ด. โครงการการผลิตสิ่งตีพิมพ์ทางเกษตร คณะเกษตรศาสตร์ มหาวิทยาลัยขอนแก่น

13.3 Chang, S.T. & W.A Hayes. 1978. The biology and cultivation of edible mushroom. NewYork