



## Course Syllabus (Academic Year 2020)

School of Interdisciplinary Studies, Kanchanaburi Campus, Mahidol University

- Course No. and Title** : KAFT 325 Food Analysis  
**Credit (study hours)** : 4 (3-3-7)
- Program Name** : Bachelor of Science in Food Technology
- Course Module** : Specific Core Course, Required Subject  
**Pre/co-requisite** : KAID 222 Analytical Chemistry, KAFT 320 Food Chemistry I
- Class Semester** :  1<sup>st</sup> Semester  2<sup>nd</sup> Semester Academic Year 2020
- Class Schedule & Venue** : Lecture every Thursday at 9.00-12.00, Room L-216, Laboratory Building  
Laboratory every Thursday at 13.00-16.00, Room L-112/ L-305/ CIF room  
(Brief at L-216), Laboratory Building
- Class Coordinator** : Assoc. Prof. Dr. Rungtiwa Wongsagonsup  
Contact No. : 082-470-7341 Email : rungtiwa.won@mahidol.ac.th

### 7. Course Description

Principles, methods, and practices on the determination of food constituents; nutritional labeling; the determination of food quality in physical and chemical aspects; principle of spectroscopy; principle of chromatography; ethical awareness; work effectively with others

### 8. Course Objectives / Course Learning Outcomes (CLOs)

No.	Objectives / CLOs	Expected Skills / Knowledge			PLOs
		Specific	Generic	Knowledge	
8.1	Explain the principles behind analytical methods associated with food	S6	G2	K17	1
8.2	Select the appropriate laboratory technique when presented with a practical problem	S6	G1	K17	2
8.3	Demonstrate practical proficiency in a food analysis laboratory	S7	G3, G7	K17	2
8.4	Demonstrate the use of oral and written communication skills and show cooperative teams	-	G10, G13-G16	K25, K26	4, 5

**Note:** S6, Skill in selecting appropriate analytical techniques; G2, Information acquisition; K17, Analysis of food properties; G1, Decision making; S7, Skill in conducting analytical procedure; G3, Ethics; G7, Time management; G10, Communication skill; G13, Writing skill; G14, Presentation skill; G15, Interpersonal skill; G16, Teamwork; K25, Thai language for communication; K26, English language for communication

## 9. Class Instructor List

9.1 Name : Assoc. Prof. Dr. Rungtiwa Wonsagonsup (RW)	Email : rungtiwa.won@mahidol.ac.th
9.2 Name : Dr. Renoo Yenket (RYK)	Email : ryenket@gmail.com
9.3 Name : Dr. Natteewan Udomsil (NU)	Email : paeng888@hotmail.com
9.4 Name : Dr. Jarupat Luecha (JL)	Email : jarupat.lue@mahidol.ac.th
9.5 Name : Dr. Chutikarn Kapcum (CK)	Email : kapcum.chu@gmail.com
9.6 Name : Dr. Netiya Karaket (NK)	Email : netiya.kar@mahidol.ac.th
9.7 Name : Asst. Prof. Dr. Nongnuch Sangayut (NS)	Email : nongnuchts@gmail.com
9.8 Name : Dr. Waraporn Treeprom (WT)	Email : waraporn.the@mahidol.ac.th
9.9 Name : Ms. Kannika Pasada (KP)	Email : kannika.pas@mahidol.ac.th
9.10 Name : Ms. Phirata Khunoat (PK)	Email : phirata.khu@mahidol.ac.th

## 10. Course Outline

Week	Date	Contents	CLOs	Teaching & Learning	Instructor's Names
1	THU 21/01/21	Lecture: - Course introduction - Titratable acidity and pH	8.1, 8.2	Lecture	RW
		Lab: Titratable acidity and pH	8.2-8.4	Laboratory	RW, KP
2	THU 28/01/21	Lecture: - Evaluation of analytical data - Sampling and sample preparation	8.1, 8.2	Lecture	RYK
		Lab: Proximate: Moisture and total solid	8.2-8.4	Laboratory	RW, CK, KP
3	THU 04/02/21	Lecture: Proximate analysis I	8.1, 8.2	Lecture	RW
		Lab: Proximate: Nitrogen and crude protein	8.2-8.4	Laboratory	RW, CK, KP
4	THU 11/02/21	Lecture: Proximate analysis II	8.1, 8.2	Lecture	RW
		Lab: Proximate: Ash	8.2-8.4	Laboratory	RW, CK, KP

Week	Date	Contents	CLOs	Teaching & Learning	Instructor's Names
5	THU 18/02/21	Lecture: Proximate analysis III	8.1, 8.2	Lecture	RW
		Lab: Proximate: Crude lipid (Soxhlet method)	8.2-8.4	Laboratory	RW, CK, KP
6	THU 25/02/21	Lecture: Vitamin and mineral analyses	8.1, 8.2	Lecture	RW
		Lab: Proximate: Crude fiber	8.2-8.4	Laboratory	RW, CK, KP
7	THU 04/03/21	Lecture: Nutritional labeling	8.1, 8.2	Lecture	RYK
		Lab: Nutritional labeling	8.2-8.4	Laboratory	RYK, KP
8	THU 11/03/21	Lecture: Analysis of pesticide, mycotoxin and drug residues in foods	8.1, 8.2	Lecture	NK
		Lab: Determination of pesticide residue in vegetables	8.2-8.4	Laboratory	NK, KP, PK
9		Mid-term Examination (15-19/03/21)			
10	THU 25/03/21	Lecture: Antioxidant analysis	8.1, 8.2	Lecture	CK
		Lab: Determination of total phenolic content and antioxidant capacity	8.2-8.4	Laboratory	CK, KP
11	THU 01/04/21	Lecture: Electrophoresis analysis	8.1, 8.2	Lecture	NU
		Lab: Sect. 1: Protein analysis by electrophoresis Sect 2: Texture analysis	8.2-8.4	Laboratory	NU, KP RW, KP, PK
12	THU 08/04/21	เช้า Lab: Sect 1: Viscosity by Brookfield viscometer Sect 2: Determination of lactic acid content in drinking yoghurt by HPLC	8.2-8.4	Laboratory	JL, KP WT, KP, PK
		บ่าย Lab: Sect. 1: Texture analysis Sect 2: Protein analysis by electrophoresis	8.2-8.4	Laboratory	RW, KP, PK NU, KP
13	THU 15/04/21*	Lecture: Analysis of physical properties I (online)	8.1, 8.2	Lecture	JL
		เช้า Lecture: Analysis of physical properties II (online)	8.1, 8.2	Lecture	JL
14	THU 22/04/21	Lecture: Chromatography		Lecture	WT

Week	Date	Contents	CLOs	Teaching & Learning	Instructor's Names
		Lab: Sect 1: Determination of lactic acid content in drinking yoghurt by HPLC Sect 2: Viscosity by Brookfield viscometer	8.2-8.4	Laboratory	WT, KP, PK  JL, KP
15	THU 29/04/21	Lecture: Spectroscopy	8.1, 8.2	Lecture	NS
		Lab: Sect 1: Color analysis Sect 2: GC analysis	8.2-8.4	Laboratory	CK, KP NK, KP, PK
16	THU 06/05/21	Paper presentation	8.4	Presentation	All class instructors
		Lab: Sect 1: GC analysis Sect 2: Color analysis	8.2-8.4	Laboratory	NK, KP, PK CK, KP
17	Final Examination (10-21/05/21)				
18					

\* Make up class (Songkran day)

## 11. Course Assessment

No.	Methods / Activities	Regulations	CLOs	Week	Weight Distribution (%)
11.1	Mid-term exam	- Closed book - Calculator is allowed	8.1, 8.2	1-8	30
11.2	Final exam	- Closed book - Calculator is not allowed	8.1, 8.2	10-15	30
11.3	Reports	Laboratory reports	8.3, 8.4	1-8, 10-16	20
11.4	Paper presentation	Group presentation - 2 students for each group - 10 min for presentation and 5 min for Q&A	8.4	16	10
11.5	Quiz / Assignments	Written quizzes	8.1, 8.2,	1-8, 10-16	5
		Group assignment	8.4		
11.6	Class participation	Instructor evaluation of class participation	8.3, 8.4	1-8, 10-16	5
				<b>Total</b>	<b>100</b>

## 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 ลีภมา รุจนะไกรกานต์ และ นิธิยา รัตนานพนธ์ (2544). หลักการวิเคราะห์อาหาร. ภาควิชาวิทยาศาสตร์และเทคโนโลยีการอาหาร คณะเกษตรศาสตร์ มหาวิทยาลัยเชียงใหม่

13.2 Association of Official Analytical Chemists (1997). Official Methods of Analysis. 16<sup>th</sup> ed. Association of Official Chemists. USA.

13.3 Jame, C.S. (1995). Analytical Chemistry of Foods. Chapman & Hall, Oxford.

13.4 Nelsen, S.S. (1998). Food Analysis. 2<sup>nd</sup> ed. Aspen Publishers, Maryland, USA.

13.5 Pearson, D. (1973). Laboratory Techniques in Food Analysis. 1<sup>st</sup> ed. John Wiley Publishers, London.

13.6 Pearson, D. (1976). The Chemical Analysis of Foods. 7<sup>th</sup> ed. Churchill Livingstone, London.

13.7 Pomeranz, Y. and Meloan, C.E. (1994). Food Analysis: Theory and Practice. 3<sup>rd</sup> ed. Chapman & Hall, USA.