



Course Syllabus (Academic Year 2018)

School of Interdisciplinary Studies, Kanchanaburi Campus, Mahidol University

1. **Course No. and Title** : KAFT 323 Food Analysis
Credit (study hours) : 4 (3-3-7)
2. **Program Name** : Bachelor of Science in Food Technology
3. **Course Module** : Specific Core Course, Required Subject
Pre-requisite : KAFT 321 Food Chemistry I
4. **Class Semester** : 1st Semester 2nd Semester Academic Year 2018
5. **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
6. **Class Coordinator** : Asst. Prof. Dr. Rungtiwa Wongsagonsup
 Contact No. : 082-470-7341 E-mail : rungtiwa.won@mahidol.ac.th

7. Course Description

Theory and practices on food sampling and sample preparation, the determination of food constituents, nutritional labeling, the determination of food quality in chemical and physical attributes, principle of spectroscopy, principle of chromatography

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	2
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	5, 6

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 : Asst. Prof. Dr. Rungtiwa Wongsagnsup (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 : Asst. Prof. Dr. Nongnuch Sangayut (NS)	Email : nongnuchts@gmail.com
9.6 Name : Dr. Netiya Karaket (NK)	Email : netiya.kar@mahidol.ac.th
9.7 Name : Dr. Waraporn Treeprom (WT)	Email : waraporn.the@mahidol.ac.th
9.8 Name : Ms. Aumpa Eakkajit (AE)	Email : namleab3@hotmail.com
9.9 Name : Ms. Phirata Khunoat (PK)	Email : phirata.khu@mahidol.ac.th
9.10 Name : Ms. Kuntida Ittiporn (KI)	Email : kuntida.itt@mahidol.ac.th

10. Course Outline

Lecture session

Week	Date	Contents	CLOs	Teaching & Learning	Instructor's Names
1	17/01/19	- Course introduction - Titratable acidity and pH	8.1, 8.2	Lecture and discussion	RW
2	24/01/19	- Evaluation of analytical data - Sampling and sample preparation	8.1, 8.2		RYK
3	31/01/19	Proximate analysis I	8.1, 8.2		RW
4	07/02/19	Proximate analysis II	8.1, 8.2		RW
5	14/02/19	Proximate analysis III	8.1, 8.2		RW
6	21/02/19	Vitamin and mineral analyses	8.1, 8.2		RW
7	28/02/19	Nutritional labeling	8.1, 8.2		RYK
8	07/03/19	Analysis of pesticide, mycotoxin and drug residues in foods	8.1, 8.2		NK
9	Mid-term Examination (11-15/03/19)				

Week	Date	Contents	CLOs	Teaching & Learning	Instructor's Names
10	21/03/19	Antioxidant analysis	8.1, 8.2	Lecture and discussion	WT
11	28/03/19	Chromatography I	8.1, 8.2		NS
12	04/04/19	Spectroscopy I	8.1, 8.2		NS
13	11/04/19	Chromatography II	8.1, 8.2		WT
14	25/04/19	Spectroscopy II	8.1, 8.2		WT
15	02/05/19	Electrophoresis analysis	8.1, 8.2		NU
16	09/05/19	Paper presentation	8.4	Group presentation	All class instructors
17	Final Examination (13-24/05/19)				
18					

Laboratory session

Week	Date	Contents	CLOs	Teaching & Learning	Instructor's Names
1	17/01/19	Titrateable acidity and pH	8.2-8.4	Laboratory experimentation	RW, AE
2	24/01/19	Proximate: Moisture and total solid	8.2-8.4		JL, RW, AE
3	31/01/19	Proximate: Nitrogen and crude protein	8.2-8.4		JL, RW, AE
4	07/02/19	Proximate: Ash	8.2-8.4		JL, RW, AE
5	14/02/19	Proximate: Crude lipid (Soxhlet method)	8.2-8.4		JL, RW, AE
6	21/02/19	Proximate: Crude fiber	8.2-8.4		JL, RW, AE
7	28/02/19	Nutritional labeling	8.2-8.4		RYK, RW, AE
8	07/03/19	Sect 1: Determination of pesticide residue in vegetables	8.2-8.4		NK, AE, PK
		Sect 2: Determination of total phenolic content and antioxidant capacity	8.2-8.4	NU, AE	
9	Mid-term Examination (11-15/03/19)				
10	21/03/19	Sect 1: Determination of total phenolic content and antioxidant capacity	8.2-8.4	Laboratory experimentation	NU, AE
		Sect 2: Determination of pesticide residue in vegetables	8.2-8.4		NK, AE, PK

Week	Date	Contents	CLOs	Teaching & Learning	Instructor's Names
11	28/03/19	Sect 1: GC analysis	8.2-8.4	Laboratory experimentation	NU, PK
		Sect 2: Color analysis	8.2-8.4		JL, AE
12	04/04/19	Sect 1: Color analysis	8.2-8.4		JL, AE
		Sect 2: GC analysis	8.2-8.4		NU, PK
13	11/04/19	Sect 1: Determination of lactic acid content in drinking yoghurt by HPLC	8.2-8.4		WT, AE, PK
		Sect 2: Viscosity by Brookfield viscometer	8.2-8.4		JL, AE
14	25/04/19	Sect 1: Viscosity by Brookfield viscometer	8.2-8.4		JL, AE
		Sect 2: Determination of lactic acid content in drinking yoghurt by HPLC	8.2-8.4		WT, AE, PK
15	02/05/19	Sect 1: Protein analysis by electrophoresis	8.2-8.4		NU, AE, KI
		Sect 2: Texture analysis	8.2-8.4		RW, AE, PK
16	09/05/19	Sect 1: Texture analysis	8.2-8.4	RW, AE, PK	
		Sect 2: Protein analysis by electrophoresis	8.2-8.4	NU, AE, KI	
17	Final Examination (13-24/05/19)				
18					

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	1-7	30
11.2	Final exam	- Closed book - Calculator is not allowed	8.1, 8.2	8, 10-16	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/Assignment	Written quizzes Group assignment	8.1, 8.2, 8.4	1-8, 10-15	5
11.6	Class participation	Instructor evaluation of class participation	8.3, 8.4	1-8, 10-16	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

13. References

- 13.1 ลักขณา รุจนะไกรกานต์ และ นิธิยา รัตนาปนนท์ (2544). หลักการวิเคราะห์อาหาร. ภาควิชาวิทยาศาสตร์และเทคโนโลยีการอาหาร คณะเกษตรศาสตร์ มหาวิทยาลัยเชียงใหม่
- 13.2 Association of Official Analytical Chemists (1997). Official Methods of Analysis. 16th 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. 2nd ed. Aspen Publishers, Maryland, USA.
- 13.5 Pearson, D. (1973). Laboratory Techniques in Food Analysis. 1st ed. John Wiley Publishers, London.
- 13.6 Pearson, D. (1976). The Chemical Analysis of Foods. 7th ed. Churchill Livingstone, London.
- 13.7 Pomeranz, Y. and Meloan, C.E. (1994). Food Analysis: Theory and Practice. 3rd ed. Chapman & Hall, USA.