



UNIVERSITI TEKNOLOGI MARA

FST261: INTRODUCTION TO FOOD CHEMISTRY

Course Name (English)	INTRODUCTION TO FOOD CHEMISTRY APPROVED
Course Code	FST261
MQF Credit	3
Course Description	This subject is aim at giving students comprehensive knowledge on the food commodities from a chemical standpoint. The primary emphasis is on their composition and the changes occur during their processing and storage. The food commodities includes oils and fats, meat, fish, egg, milk, cereals and flours and fruits and vegetables.
Transferable Skills	Expert in field
Teaching Methodologies	Lectures, Lab Work, Discussion
CLO	CLO1 Explain the chemical composition and properties of food commodities CLO2 Display the chemical procedure of food commodities CLO3 Describe the composition and properties of food commodities
Pre-Requisite Courses	No course recommendations
Topics	
1. Oils and fats 1.1) 1.1 Sources 1.2) 1.2 Classification of lipids 1.3) 1.3 Structures of triglycerides and fatty acids 1.4) 1.4 Physical and chemical properties of oil 1.5) 1.5 Rancidity: oxidative rancidity and hydrolytic rancidity	
2. Meat and poultry 2.1) 2.1 Sources and composition 2.2) 2.2 Structure of muscle fibres 2.3) 2.3 Theory of muscle contraction and relaxation 2.4) 2.4 Post-mortem changes 2.5) 2.5 Factors affecting eating quality of meat: colour, texture, juiciness, flavour	
3. Fish 3.1) 3.1 Classification and composition 3.2) 3.2 Post-mortem changes in fish 3.3) 3.3 Fish spoilage	
4. Eggs 4.1) 4.1 Structure and composition of chicken's egg 4.2) 4.2 Egg white proteins and egg yolk proteins	
5. Milk 5.1) 5.1 Chemical composition of milk 5.2) 5.2 Types of casein and whey proteins 5.3) 5.3 Effect of processing on milk	
6. Cereals and legumes 6.1) 6.1 Structure and composition of wheat 6.2) 6.2 Factors affecting flour quality 6.3) 6.3 Bleaching and maturing of flour 6.4) 6.4 Rice: types and composition	

7. Fruits and vegetables

7.1) 7.1 Composition of fruits and vegetables

7.2) 7.2 Plant pigments: classification, occurrence, structure, colour and stability

7.3) 7.2.1 Chlorophylls

7.4) 7.2.2 Carotenoids: carotenes and xanthophylls

7.5) 7.2.3 Anthocyanins

7.6) 7.3 Changes during ripening

7.7) 7.4 Enzymatic browning reactions: occurrence, reaction and control measures

8. Enzymatic browning

8.1) 8.1 Occurrence, reaction and control measures

9. Non-enzymatic browning

9.1) 9.1 Occurrence, reactions and control measures of Maillard reaction

Assessment Breakdown	%
Continuous Assessment	70.00%
Final Assessment	30.00%

Details of Continuous Assessment	Assessment Type	Assessment Description	% of Total Mark	CLO
	Lab Exercise	Procedural skill 10%	10%	CLO3
	Lab Exercise	Lab report 20%	20%	CLO2
	Quiz	Quiz 1 will cover topic Oils and fats	5%	CLO1
	Quiz	Quiz 2 will cover topic Eggs	5%	CLO1
	Test	Test 1 cover topics Oils and fats and meat and poultry	10%	CLO1
	Test	Test 2 will cover topics Fish, Eggs, Milk and Cereals and legumes	10%	CLO1
	Test	Test 3 will cover topics Fruits and vegetables, Enzymatic browning and non-enzymatic browning	10%	CLO1

Reading List	Reference Book Resources
	<ul style="list-style-type: none"> • H.-D. Belitz, Werner Grosch, Peter Schieberle 2009, <i>Food Chemistry. 4th revised and extended edition</i>, 4th Ed., Springer Science & Business Media Berlin, Heidelberg [ISBN: 9783540699347] • Amy Christine Brown 2014, <i>Understanding Food: Principles and Preparation</i>, 5th Ed., Cengage Learning California [ISBN: 9781133607151] • John M. deMan, John W. Finley, W. Jeffrey Hurst, Chang Yong Lee 2018, <i>Principles of Food Chemistry</i>, 4th Ed., Springer New York [ISBN: 9783319636078] • Srinivasan Damodaran 2017, <i>Fennema's Food Chemistry, Fifth Edition</i>, 5th Ed., CRC Press New York [ISBN: 9781482208122] • Vickie Vaclavik, Elizabeth W. Christian 2013, <i>Essentials of Food Science</i>, 4th Ed., Springer New York [ISBN: 1461491371] • Jan Velisek 2014, <i>The Chemistry of Food</i>, Wiley-Blackwell New York [ISBN: 9781118383810]
Article/Paper List	This Course does not have any article/paper resources
Other References	This Course does not have any other resources