ATTACHMENT 2 (e)

Course Specifications

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications
(CS)

FSN 316

Course Specifications

Institution	King Saud University
Date of Report	
College/Department	College of Food Science and Agriculture / Food Sciences and Nutrition Department

A. Course Identification and General Information

1. Course title and code:
316 FSN Food Chemistry

2. Credit hours
3 (3+0)

3. Program(s) in which the course is offered.
(Food Sciences and Human Nutrition and other relevant programs)

4. Name of faculty member responsible for the course
Dr. Mohammed A. Alfawaz

5. Level/year at which this course is offered 4th year - 1st and 2nd Tem

6. Pre-requisites for this course (if any) BCH 101(General Biochemistry)

7. Co-requisites for this course (if any)

8. Location if not on main campus

9. Mode of Instruction (mark all that apply)

a. Traditional classroom	√	What percentage?	100 %
b. Blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. Correspondence		What percentage?	
f. Other		What percentage?	

Comments:
Most of the teaching method is traditional class room with smart board and visual aid devices. Students will be gives assignments to gather information on line and attend video description of different operations related to bread baking and other cereal related operations.

B Objectives

1. What is the main purpose for this course? – Study the chemical nature of foods (carbohydrates, proteins, lipids, and water). – Observe the effect of processing, storage, and cooking on major components of foods. – Study the mechanism of browning reactions and lipid oxidation and the effects of these reactions on food quality such as flavor, color, nutritional value, and economical value. – Consider the role of food additives. – Understand the effects of the new processing technologies on the natural components of foods.
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field) • Improve the website of the faculty member to support the course contents for lecture. • Use the small groups teaching method by assigning a topic to students and require a presentation and discussion on the presented topic. • Enhance the use of smart board. • Periodic review of the course material and update the contents.

C. Course Description (Note: General description in the form to be used for the Bulletin or handbook should be attached)

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact Hours
Introduction to course, History and Definition of food chemistry	0.33	1
Water in Foods	1.66	5
Food Carbohydrates	2.67	8
Food Proteins	2	6
Food Enzymes	1	3
Food Lipids	2.67	8

Oils and Fats Sources in Foods	1	3
Processing Technology of Vegetable Oils	1	3
Browning Reactions in Foods	0.67	2

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	39					39
Credit	3					3

3. Additional private study/learning hours expected for students per week. 1-2

1-2 hours weekly for the homework assignments.

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

Course Learning Outcomes, Assessment Methods, and Teaching Strategy work together and are aligned. They are joined together as one, coherent, unity that collectively articulate a consistent agreement between student learning, assessment, and teaching.

The ***National Qualification Framework*** provides five learning domains. Course learning outcomes are required. Normally a course has should not exceed eight learning outcomes which align with one or more of the five learning domains. Some courses have one or more program learning outcomes integrated into the course learning outcomes to demonstrate program learning outcome alignment. The program learning outcome matrix map identifies which program learning outcomes are incorporated into specific courses.

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. **Fourth**, if any program learning outcomes are included in the course learning outcomes, place the @ symbol next to it.

Every course is not required to include learning outcomes from each domain.

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Recognize the major and minors components of foods.	Lectures, Homework assignments	a case study to teach students how to analyse information and reach a decision;
1.2	Define the chemical reactions of major components of foods during processing and storage.	Lectures, Homework assignments, exercises	writing a review paper so that students develop self-learning skills and presentation
1.3	State the functional properties of major components of foods.	Lectures, Homework assignments,	Review chapters related to functional properties of food
1.4	Describe reactions and mechanism important in food chemistry.	Lectures, Homework assignments,	Assessment of the assignments
2.0	**Cognitive Skills**		
2.1	Students will develop understanding of food chemistry principles.	Lectures, Practical Assignments. Exercises and tutorials, Research assignments	Major exams, Final exam, semester actives
2.2	Students will be able to evaluate different types of food and visually assess the presence of any chemical reaction.	Group working, Solving the problems during tutorial/recitation session	Assigned problem checking and score students

2.3	Student will be able to justify the type of food spoilage and predict the cause.	Lectures and topics group discussion	Score students on their ability to think through problem solving
2.4	By now, students will be able to examine raw material and suggest appropriate processing method	Assignments	Short test
3.0	**Interpersonal Skills & Responsibility**		
3.1	Demonstrate working independently and as a team work.	Observe individuals during oral presentation	Examine students ability to express themselves verbally
3.2	Students will show and arrange resources, time and coordinate with members.	During presentations, students will be taught how to solve problems with team-teamwork	Assessment of reports every week
3.3	Use different skills to carry work forward with others.	Writing a review paper and judge peer learning and presentation	Grading of home assignments and presentations
4.0	**Communication, Information Technology, Numerical**		
4.1	Demonstrate the of use of computational tools such as data analysis and presentation	Reports presentation.	Assessment of reports every week
4.2	Use the Computer for processing the experimental data	Incorporating the use and Utilization of computer in the course requirements.	Class activities as practical exercises
4.3	Students are able to prepare graphs and write report in professional way by the end of the course.	Evaluation on the basis of questioning and writing report.	Class discussions and score participation
5.0	**Psychomotor**		
5.1	Student should demonstrate ability to design and experiment to determine major composition of unknown sample	Lectures on how to approach unknown sample determination	Practical assignments

Suggested Guidelines for Learning Outcome Verb, Assessment, and Teaching

NQF Learning Domains	Suggested Verbs
Knowledge	list, name, record, define, label, outline, state, describe, recall, memorize, reproduce, recognize, record, tell, write
Cognitive Skills	estimate, explain, summarize, write, compare, contrast, diagram, subdivide, differentiate, criticize, calculate, analyze, compose, develop, create, prepare, reconstruct, reorganize, summarize, explain, predict, justify, rate, evaluate, plan, design, measure, judge, justify, interpret, appraise
Interpersonal Skills & Responsibility	demonstrate, judge, choose, illustrate, modify, show, use, appraise, evaluate, justify, analyze, question, and write
Communication, Information Technology, Numerical	demonstrate, calculate, illustrate, interpret, research, question, operate, appraise, evaluate, assess, and criticize
Psychomotor	demonstrate, show, illustrate, perform, dramatize, employ, manipulate, operate, prepare, produce, draw, diagram, examine, construct, assemble, experiment, and reconstruct

Suggested ***verbs not to use*** when writing measurable and assessable learning outcomes are as follows:

Consider	Maximize	Continue	Review	Ensure	Enlarge	Understand
Maintain	Reflect	Examine	Strengthen	Explore	Encourage	Deepen

Some of these verbs can be used if tied to specific actions or quantification.

Suggested assessment methods and teaching strategies are:

According to research and best practices, multiple and continuous assessment methods are required to verify student learning. Current trends incorporate a wide range of rubric assessment tools; including web-based student performance systems that apply rubrics, benchmarks, KPIs, and analysis. Rubrics are especially helpful for qualitative evaluation. Differentiated assessment strategies include: exams, portfolios, long and short essays, log books, analytical reports, individual and group presentations, posters, journals, case studies, lab manuals, video analysis, group reports, lab reports, debates, speeches, learning logs, peer evaluations, self-evaluations, videos, graphs, dramatic performances, tables, demonstrations, graphic organizers, discussion forums, interviews, learning contracts, antidotal notes, artwork, KWL charts, and concept mapping.

Differentiated teaching strategies should be selected to align with the curriculum taught, the needs of students, and the intended learning outcomes. Teaching methods include: lecture, debate, small group work, whole group and small group discussion, research activities, lab demonstrations, projects, debates, role playing, case studies, guest speakers, memorization, humor, individual presentation, brainstorming, and a wide variety of hands-on student learning activities.

5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	**Major Exam I**	**Week 4**	**20%**
2	**Major Exam II**	**Week 8**	**20%**
3	**Major Exam III**	**Week 12**	**20%**
4	**Final Exam**	**Final week**	**40%**
	Total		**100%**

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week) – **Office hours (10 hours per week & by appointments)** – **Faculty's web site, E-mail, and Office phone**

E. Learning Resources

1. List Required Textbooks **Principle of Food Chemistry, Hanafe Hasham and Ahamd Assker (Translators), 1996, Edar Arabic for Publication and Distribution, Egypt.** **- أساسيات كيمياء الأغذية، ترجمة حنفي هاشم وأحمد عسكر، ١٩٩٦، الدار العربية للنشر والتوزيع، مصر**
2. List Essential References Materials (Journals, Reports, etc.) **Food chemistry, Basal Aldlali and Kamal Alrekabi, 1995, Dar Alkendi for Publication and Distribution, Erbid, Jordan.** **كيمياء الأغذية، باسل كامل الدلالي وكامل الركابي، ١٩٩٥، دار الكندي للنشر والتوزيع، اربد، الأردن**
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) **Food Chemistry, Adel Sajeed and Ala Ali (Translators), 1983, College of Agriculture, University of Basra, Iraq.** **- كيمياء الأغذية، ترجمة عادل ساجدي وعلاء علي، ١٩٨٣، كلية الزراعة – جامعة البصرة، العراق.** **Analysis of Food Chemistry Principles and Applications, Mohamad Amin Abdullah, Mamdouh Qaliubiya, and Mohamad Khlaf, 2002, Dar Alsharq, Cairo, Egypt.** **- كيمياء تحليل الأغذية الأسس العلمية وتطبيقاتها، محمد أمين عبدالله وممدوح حلمى القليوبى ومحمد مجدى خلاف، ٢٠٠٢، دار الشروق، القاهرة، مصر.** **Chemistry and Analysis of Foods, Mohamad Aman and Mohamad Yousif, 1996, Modern Library knowledge, Alexandria, Egypt** **- كيمياء وتحليل الأغذية، محمد البسطويسى أمان ومحمد محمود يوسف، ١٩٩٦، مكتبة المعارف الحديثة، الإسكندرية، مصر.**

Biochemistry, Adel Jerar, Nabel Amer, Faisal Abualfatah, and Mohamad Altrefi, 1990, Dar Alfaker for Publication and Distribution, Amman, Jordan. **الكيمياء الحيوية، عادل جرار ونبيل عامر وفيصل عبدالفتاح ومحمد الطريفي، ١٩٩٠، دار الفكر للنشر -**
4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.) – **Faculty's Web Site** – **Relevant Web sites to the topics of the course.**
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. **Portable Document Format (PDF), Power Point Presentations, and other handouts posted on the faculty's website for the students enrolled in the class.**

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) **A classroom with at least 30 seats equipped with smart board and other visual aid technology.**

2. Computing resources (AV, data show, Smart Board, software, etc.) **Computer classroom containing at least 15 computer sets and facilities with:** **1- Smart board** **2- Projector** **3- Scanner** **4- Printer**
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching – **Course evaluation by students each semester done by the university.** – **Meeting with students.** – **E- Suggestions.** – **Open door policy.**
2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor – **Self evaluation** – **Peer review** – **Peer consultation on teaching** – **Departmental council discussions** – **Attend Workshops offered by the deanship of quality at KSU**
3 Processes for Improvement of Teaching – **Study and analyze course reports and surveys reports.** – **Faculty training including sabbatical leave.** – **Exchanging faculty between different institutions**.

4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)

- Supervisors of students during industrial training are requested to evaluate their performance.
- Students' assignments can be evaluated by eternal examiners from different institutions or from within the department.
- Product development competition supervised by industrial expert can be used as an evaluation method to access the student's capabilities.

5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. – **Collecting all reports and evaluations at the end of the year for a reviewing purpose.** – **The course material and learning outcome are periodically reviewed for appropriateness and content improvement.**

Faculty or Teaching Staff: Dr. Mohammed A. Alfawaz
Signature: _____ **Date Report Completed:** _____

Received by: _____ **Dean/Department Head**

Signature: _____ **Date:** _____