



ATTACHMENT 2 (e)

Course Specifications

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

**Course Specifications
(CS)**



Course Specifications

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

A. Course Identification and General Information

1. Course title and code: 317 FSN Food Analysis			
2. Credit hours		3 (1+2)	
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 Prof. A.S. Al Khalifa			
5. Level/year at which this course is offered 5 th year - 2 nd Tem			
6. Pre-requisites for this course (if any)		316 FSN	
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	<input checked="" type="checkbox"/>	What percentage?	<input type="text" value="75 %"/>
b. Blended (traditional and online)	<input checked="" type="checkbox"/>	What percentage?	<input type="text" value="25 %"/>
c. e-learning	<input type="checkbox"/>	What percentage?	<input type="text"/>
d. Correspondence	<input type="checkbox"/>	What percentage?	<input type="text"/>
f. Other	<input type="checkbox"/>	What percentage?	<input type="text"/>
Comments:			



B Objectives

<p>1. What is the main purpose for this course?</p> <ul style="list-style-type: none"> • Basic knowledge of Food Science and nutrition for higher level study. • Methods of Sampling, Pooling of sample to carry forward the statistical analysis. • Familiarize with the scientific instruments / Technique of Spectrometer / Chromatography. • Food and Nutritional awareness in daily life.
<p>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)</p> <ul style="list-style-type: none"> • Digital material and computational based programs are being utilized to support the course and updated on regular basis. • The Course material is accessible to the students, specially enrolled in the same course, on the web. • The lab experiments were reviewed: As a result of introducing new equipments to save the time and chemicals. • Amended and new Experiments have been introduced.

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
Methods of Sampling, handling, Pooling and analyzing statistically.	1.75	4
Preparation of standard solutions and use of Titration	1.75	4
Determination of Moisture and Ash	1.75	4
Determination of Protein by Kjehldahl method	1.75	4
Determination of Sugars by Conventional and HPLC method	3.25	8
Additive Or Adulteration of additive (Nitrite) in meat samples	1.75	4
Spectrometer and use of Spectrometer	1.75	4
Chromatography and its applications	1.75	4



2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	14	14	56	56		84
Credit	1	1	2	2		3

3. Additional private study/learning hours expected for students per week. 4-5 hours weekly for the homework and pre laboratory assignments.	<input type="text"/>
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4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy
<p>A brief summary of the knowledge or skill the course is intended to develop; A description of the teaching strategies to be used in the course to develop that knowledge or skill The methods of student assessment to be used in the course to evaluate learning outcomes in the domain concerned.</p>

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	* Recording of sampling and pooling for experimental work.	Lectures, Homework assignments, seminars	In class short MCQs quizzes Major and Final Exams
1.2	*Define the Standard solution preparation and application practically.	Lectures, tutorials, assignments, exercises	Writing a review paper for the students to gain the skills of self-learning and presentation.
1.3	* Stating the Procedure of Titration for the analysis of vitamin, protein, sugars.	Lectures, Homework assignments,	Lab sessions for the students to gain practical skills and executing experiments to train the students to analyse the results and reach specific conclusions.
1.4	* Knowledge of Nutrients values of foods, such as ash, fat, Protein Fiber, sugars.	Lectures, Homework assignments, laboratory work	Checking the problem solved in the homework assignments.
1.5	* outline the knowledge of spectrometer / chromatography and applications.	Laboratory work	Practical experiments
2.0	Cognitive Skills		
2.1	Evaluate the Calculations Of Proximate analysis	Problem solving, group working	Major exams, Final exam, semester activities
2.2	Capable of operating the instruments used in fat extraction, protein and sugar analysis.	The use of new technological tools	Practical experiments
2.3	Identify the difficulties during experimental work that are to be solved.	Group working, Solving the problems during tutorial/recitation session	Assigned problem checking
2.4	Determine the Conceptual applications of Food Science in human life.	Written and oral communication , research papers	MCQs Quizzes in the classes



3.0	Interpersonal Skills & Responsibility		
3.1	Demonstrate working independently and as a team work.	Interaction with individuals and discuss the results after experiments	Laboratory exams on regular basis
3.2	Show and arrange resources, time and coordinate with members.	Solving the problems with team-teamwork	Assessment of reports every week
3.3	Use different skills to carry work forward with others.	Writing a review paper for the students to gain the skills of self and peer learning and presentation	Grading of home assignments
4.0	Communication, Information Technology, Numerical		
4.1	Demonstrate the use of Computational tools	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	Preparation of graphs and writing Report in professional way.	Evaluation on the basis of questioning and writing report.	Class discussions
5.0	Psychomotor		
5.1	Demonstrate the students' knowledge the different methods of food analysis and how they interpret that knowledge practically	Practical experiments and exercises	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	Class Activities (Quizzes and homework)	weekly	25%
2	Exam 1 st	6	15%
3	Exam 2 nd	12	15%
4	Final Exam	16	20%
5	Lab Activities	weekly	25%



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)

6 hours during office time.
Faculty's web site, E-mail, and Office phone

E. Learning Resources

1. List Required Textbooks

Suzanne, SR, Food Analysis- Laboratory Manual, 3rd,edition.Kulwer, Academic/Plenum
Publisher

Al Khalifa and Dafaullah, Food Analysis- In Press, King Saud University, Riyadh, Saudi Arabia

2. List Essential References Materials (Journals, Reports, etc.)

Al Khalifa and Awadh dafaullah, Laboratory Food Analysis Manual, Food and Nutrition
Department, King Saud University, Riyadh, Saudi Arabia.

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

**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 حلمي القليوبي 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 البسطويسي أمان ومحمد محمود يوسف، ١٩٩٦، مكتبة المعارف الحديثة، الإسكندرية،
مصر.

4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)

- Faculty's Web Site
- Web sites on the internet that are relevant 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.)

- Lecture room with at least 25 seats.
- Capacity of seats
- Chemical laboratory with at least 25 separated benches, for one student each.



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)

- Chemicals, glassware's and relevant equipments to the course
- Safety facility, ventilation better.

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching

- Arrange / Organize Seminars delivered by students
- Faculty meeting with students
- Course Evaluation

2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor

- Department Council discussion
- Consultation / Discussion with interlink with staff teaching course
- Discussion within the groups of faculty teaching the course

3 Processes for Improvement of Teaching

- Monitoring teaching by senior staff
- Periodically department revision of its methods of teaching
- Conduction workshop delivered by Experts on teaching and Methodology



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)

- The Course material and outcomes are periodically revised in the department and higher council / Changes are taken as approved by the higher boards of the faculty.
- The head of the Department and faculty take the responsibility of implementing the proposed plan.



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 appropriate and improvement changes.**

Faculty or Teaching Staff: **Prof. A.S. Al Khalifa**

Signature: _____ Date Report Completed: _____

Received by: _____ Dean/Department Head

Signature: _____ Date: _____