



PROGRAM SPECIFICATION

Bachelor of Science (B.Sc.) in Food Science and Human Nutrition (2020 - 2021)

Awarding Institution	A'Sharqiyah University
College / Centre	College of Applied & Health Sciences
Department	Food Science and Human Nutrition
Program Title	Food Science and Human Nutrition
Program Code	FSHN
Accredited By	-
Final Award	Bachelor of Science (B.Sc.) in Food Science and Human Nutrition
Level of Study	Bachelor of Science
Language of Study	English
Benchmarks	Oklahoma State University
Entry requirements	<p>A student:</p> <ul style="list-style-type: none"> - should achieve the standards set for the subjects of the General Foundation Program (GFP) at ASU or other equivalent programs elsewhere - should have been accepted in Diploma Program and have successfully completed the course requirements towards diploma or equivalent, i.e., Biology, chemistry, Pure Mathematics, Basic courses in Food science, along with university requirements. - should have studied subjects which qualify him/her to be enrolled in programs in the College of Applied & Health Sciences - must be medically fit.
Minimum period of registration	4 years - 8 Semesters
Maximum period of registration	8 Years – 16 Semesters
Date specification produced	May 2015
Date specification last reviewed	November 2016



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1. THE COLLEGE OF APPLIED SCIENCES

The College of Applied & Health Sciences (CAHS) is a pioneering faculty at ASU aiming to promote high international quality education in Oman that prepares students for modern, high quality jobs in various disciplines related to science and technology. The primary focus of the CAHS at ASU is the effective utilization of the Sultanate's resources for sustainable growth and development of the human society in Oman. Our vision is to be among the top applied sciences colleges in the Middle East region recognized internationally for excelling science education and research while contributing substantially to national and regional development and find solutions to issues of strategic importance through basic and applied research and disseminate knowledge to the Omani and International communities which will result in continuous improvements to the quality of life.

2. PROGRAM OUTLINE

Food scientists and nutritionists fuel the minds that feed the world while maintaining a healthy life style. They study the physical, microbiological, and chemical makeup of food and use their findings to develop the nutritious, delicious and innovative foods products that line supermarket shelves everywhere. Moreover, they learn the effect of different processing and preservation practices applied for food on the human systems in order to ensure that safe, high quality and healthy products reach the market.

In this program the students study food safety, biochemistry, microbiology, engineering, and sensory science including the manufacture, preservation, quality assurance, and safe development of food products besides learning clinical nutrition, management of food systems and food services, medical nutrition and dietetic counseling techniques. They develop a greater understanding of the fate of raw agricultural produce, and how such materials are processed and formulated into food products before being presented to the consumer.

3. PROGRAM AIMS

The aims of this program are to develop human resources to meet challenges in processing food for value addition and to ensure food security in Oman by

- a) providing students with an academic foundation in the liberal arts and sciences that will produce competent professionals in the food and nutrition fields
- b) Preparing students to assume leadership roles as successful professionals who engage in life-long learning

4. LEARNING OUTCOMES

Upon completion of the program, students will be able to:

<p>A. KNOWLEDGE AND UNDERSTANDING</p>	<ul style="list-style-type: none"> • Differentiate the concepts of food science from that of nutrition • Identify general food safety hazards and practice safe handling of food • Describe the basic biochemistry of food components and principles of food preservation and processing
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	<ul style="list-style-type: none"> • Comprehend the concept of food security • Discuss the activities of food scientists in ensuring the safety and security of our food supply • Describe the chemical composition of the human body and the role of nutrients in maintaining it • Discuss the factors affecting food selection and its influence on dietary habits. • Outline adequacy of nutrient intakes with dietary guidelines as reference. • Describe each nutrient with regard to its function in the body, its food source, and the disorder resulting from its deficiency. • Explain the association between dietary habits and chronic diseases. • Distinguish safe and healthy foods along with appropriate dietary practices from food fads and fallacies. • Design and deliver appropriate diets for humans with specific diseases/illnesses
<p>B. SUBJECT-SPECIFIC INTELLECTUAL SKILLS</p>	<ul style="list-style-type: none"> • Plan and execute basic laboratory work as well as research or development work • Evaluate the outcomes and draw valid conclusions. • Design an experiment, investigation or survey or other means to test an hypothesis or proposition • Critically analyze information, synthesize and summarize outcomes. • Compare and contrast the global food distribution and consumption patterns with specific emphasis to Oman • Analyze the reasons for development of food laws based on the concepts of food poisoning • Understand and interpret food labelling and its significance • Analyze adequacy of a meal in terms of its nutrient content. • Assess and analyze the macronutrient/micronutrient content of common foods consumed by individuals and communities • Assess and predict the outcome of a prolonged consumption of a diet high in fat, cholesterol and salt content. • Critically evaluate and apply the knowledge for planning a balanced diet.
<p>C. PROFESSIONAL / PRACTICAL SKILLS</p>	<ul style="list-style-type: none"> • Plan, conduct and report on investigations including the use of secondary data



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	<ul style="list-style-type: none"> • Collect and record accurately information or data in the library, laboratory or field, and summarize it using appropriate qualitative and/or quantitative techniques • Devise, plan and undertake field and laboratory investigations in a responsible and safe manner. • Select and apply a range of methods to solve problems • Interpret practical results and present results/research finding in different formats. • Apply the concepts of food science for the proximate analysis of some common food materials • Apply the underlying principles and methods of food processing, preservations and storage using indigenous as well as modern methods • Communicate effectively using appropriate scientific terminology in the general context of food chemistry, food microbiology and food engineering. • Use dietary guidelines to plan a balanced diet. • Estimate caloric requirements of individuals making use of software, scales and slide rules. • Apply the concepts of balancing micronutrients with macronutrient consumption for planning a diet.
<p>D. TRANSFERABLE SKILLS</p>	<ul style="list-style-type: none"> • Communication • Acknowledge differences and able to adapt to difference of opinions while being open minded • Being assertive while accepting feedback at the same time • To be concise and clear and provide specific details supported by scientific data and publications • Teamwork and interpersonal skills • Perform live projects as a team and contribute to strengthen each others weaknesses • Take responsibility and claiming ownership for their responsibility while working in a team • Always prepared to listen to team members • Information literacy and study skills • Recognise a need for information and distinguish ways of addressing gap and select appropriate sources • Strategically locate and access information to



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	<p>construct research strategies</p> <ul style="list-style-type: none">• Compare and evaluate information• Synthesise and create missing information• Numeracy• Appreciate issues of sample selection, accuracy, precision and uncertainty during collection, recording and analysis of data in the field and laboratory• Prepare, process, interpret and present data using appropriate qualitative and quantitative techniques and software packages.• Leadership and entrepreneurship• Develop good problem solving and decision making abilities• Understand and assess market needs for development of new food products• Lead clinical trials for nutritional assessments
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5. PROGRAM STRUCTURE

5.1 University Requirements: Total Credit hours 18

Course Code	Course Title	Pre-Requisites (P) Co-Requisites (C)	Credit hours
ARAB101	Arabic		3
ISLM101	Islamic Civilization		3
ENGL101	English Communication Skills I		3
SOCI101	Sociology		3
ENGL102	English Communication Skills II	ENGL101	3
PHIL101	Introduction to Logic (Philosophy)		3
TOTAL			18

5.2 University Electives: Total Credit hours 3

<i>choose from University course catalog</i>		
TOTAL		3

5.3 College Requirements: Total Credit hours 36

Course Code	Course Title	Pre-Requisites (P) Co-Requisites (C)	Credit hours
BIOL101	Biology I	BIOL181 (C)	3
BIOL181	Biology I Laboratory	BIOL101 (C)	1
CHEM101	Chemistry I	CHEM181 (C)	3
CHEM181	Chemistry I Laboratory	CHEM101 (C)	1
FSHN F480	New Food Product Development	FSHN F311 FSHN F411 FSHN F313 FSHN F414 FSHN F211	3
PHYS101	Physics I	PHYS181 (C)	3
PHYS181	Physics I Laboratory	PHYS101 (C)	1
MATH101	Calculus I		3
FSHN N370	Assessment of Nutritional Status	FSHN N162 N262 N362	3
APSC301	Research Skills in Science	STAT201	3
FSHN F111	Introduction to Food Science	CHEM101	3
		BIOL101	
STAT201	Statistics		3
APSC201	Management and Business Skills	STAT201 (C)	3
FSHN N162	Introduction to Human Nutrition	BIOL101 CHEM101	3
TOTAL			36



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5.4 Major Requirements

Total Credit Hours : 66

Course Code	Course Title	Pre-Requisites (P) Co-Requisites (C)	Credit Hours
CHEM102	Chemistry II	CHEM 101	3
CHEM182	Chemistry II Lab	CHEM102	1
CHEM201	Organic Chemistry I	CHEM 101, CHEM281 (C)	3
CHEM281	Organic Chemistry I Lab	CHEM201 (C)	1
APSC310	Human Anatomy and Physiology	BIOL101, APSC381 (C)	3
APSC381	Human Anatomy and Physiology Lab	APSC310 (C)	1
FSHN N261	Principles of Food service management	FSHN N162, FSHN F111	3
FSHN F211	Food Sanitation	BIOL201(C), FSHN F111	3
FSHN N262	Nutritional Biochemistry	FSHN N162, CHEM201, CHEM281	3
BIOL201	Microbiology	BIOL101, BIOL281 (C)	3
BIOL281	Microbiology Lab	BIOL201 (C)	1
FSHN F311	Food Analysis	FSHN F111, CHEM201, CHEM281	3
FSHN N371	Institutional Food Systems Management	FSHN N162, FSHN N261	3
FSHN F313	Food Microbiology	FSHN F111, BIOL201, BIOL281	3
FSHN N362	Nutrition in the Lifecycle	FSHN N162	3
FSHN F411	Food Chemistry	FSHN F111, CHEM201, CHEM281	3
FSHN N471	Community Nutrition	FSHN N162, FSHN N362	3

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FSHN N481	Medical Nutrition Therapy	FSHN N162, FSHN- N362, FSHN N262, APSC310	3
FSHN F414	Food Engineering	MATH101, FSHN F111, PHYS101, STAT201	3
FSHN F482	Emerging Issues in Food Science & Nutrition	FSHN N162, FSHN F111	2
FSHN N472	Dietetic Counseling for Chronic Diseases	FSHN N262, N370, N362, N481	3
FSHN 470	Internship	After 80 credits (FSHN F311, FSHN F414 + FSHN N371 + CR*)	3
FSHN XXXX	Elective (FS or HN)	Check pre-requisites	9
Total			66

5.5 Major Electives: Total Credit hours 9

Choose from the following:

Course Code	Course Title	Pre-Requisites (P) Co-Requisites (C)	Credit hours
FSHN F312	Sensory Analysis of Foods	FSHN F111 STAT201	3
FSHN F412	Food Processing and Packaging	FSHN F111 CHEM 201 CHEM 281	3
FSHN F413	Food Law and Regulation	FSHN F211	3
FSHN N361	Quantity Food Purchasing	FSHN N261 FSHN F111	3
FSHN N461	Cultural Foods	FSHN N362 FSHN F111	3
FSHN-N462.	Nutrition and metabolism	FSHN N362 FSHN F111	3
FSHN F415.	Dairy technology	FSHN F414 FSHN F411 FSHN F311	3
FSHN F416	Meat and poultry technology	FSHN F414 FSHN F411 FSHN F311	3
FSHN F417	Beverages and plant products technology	FSHN F414 FSHN F411 FSHN F311	3



6. PROGRAM REFERENCE POINTS

This Program has been designed with reference to:

- The Quality Assurance Agency (QAA) for Higher Education (2009) Subject benchmark statements for agriculture, horticulture, forestry, food and consumer services. ISBN 978 1 84979 017 8
- Institute of Food Technologists (IFT) Educational Standards (2001) for most of the core competencies of the program related to food science
- American Dietetic Association's (ADA) Commission on Accreditation for Dietetics Education (CADE) (2008) for most of the core competencies related to human nutrition

7. TEACHING AND LEARNING METHODS (indicative)

This program contains courses with lectures, literature-based research, case studies, problem solving in classrooms, practical classes in the laboratory, live projects as well as internship in a food related industry

- a) Through a series of lectures, classroom discussions, laboratory work and other advanced pedagogic techniques the students will gain the support knowledge essential for the successful practice as a food and nutrition expert
- b) By means of integration of theory, experiment, investigation and laboratory work students acquire skills necessary for Scientific and Evidence Base of Practice
- c) The seminars, class room presentations and other leadership activities performed by the students during their course of study in this program will enable them to meet professional practice expectations in the fields of food science and nutrition
- d) Appropriate training provided in this program by means of theory and practice the students will be able to achieve the development of principles into practice and quantitative and qualitative approaches to information
- e) By learning the principles of systems management, the students will acquire the ability to strategically apply those in the provision of services to individuals, organizations and industries leading to professional customer service

8. ASSESSMENT METHODS (Indicative)

Assessment will be formative as well as summative using different forms, including examinations (written, oral or practical). To incorporate continuous assessment, students will have assignments, quizzes and two mid semester exams. The style of assessment will be linked to clearly defined goals and anticipated learning outcomes of each course in the program. It will be managed to promote deep rather than surface learning. Assessments based on real-life problems, with employer involvement and with effective feedback, are valuable and will be included wherever possible

9. CAREER and STUDY OPPORTUNITIES

Graduates of this program will have career opportunities with food companies, health care facilities, academic institutions, community education programs, quantity food service facilities and government agencies. Opportunities for graduate studies are versatile over a wide range of food science, nutrition and dietetics programs available around the world at the levels of masters as well as doctorate.



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10. STUDENT SUPPORT

Students attend an orientation program at the start of their studies. They are supported by a student advisor and several course coordinators throughout their studies and the Head of Department is also available to advise on program-related queries.

Students have access to the University's library with a range of reading materials, online resources and study support.

The University's Student Affairs Office supports students in adjusting to university life and advises on issues such as finance, regulations, legal matters, accommodation, transportation, disabilities and career guidance. Opportunities are also provided for students to participate in various extra-curricular activities.

The Student Council is also an important source of support and guidance.

The University has a Student Fund, which considers applications on a case-by-case basis.



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10. Program Structure Diagram

Two Years' Diploma Degree and Four Years' Course Allocation Plan for Bachelor Degree in Food Science and Human Nutrition, College of Applied Sciences							
Year 1		Year 2		Year 3		Year 4	
Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring
Semester 1/17	Semester 2/17	Semester 3/16	Semester 4/16	Semester 5/16	Semester 6/15	Semester 7/14	Semester 8/12
(SOCL101) Sociology (UR) P: Nil C: Nil CH: 3	(ENGL102) English Communication Skills II (UR) P: ENGL101 C: Nil CH: 3	(PHIL101) Introduction to Logic (Philosophy) (UR) P: Nil C: Nil, CH: 3	(ISLM101) Islamic Civilization (UR) P: Nil C: Nil CH: 3	(STAT201) Statistics (CR) P: Nil C: Nil CH: 3	(FSHN N370) Assessment of nutritional status (CR) P: FSHN N162, FSHN N262, FSHN N362 C: Nil, CH: 3	(FSHN F482) emerging Issues in FSHN (MR) P: FSHN N162, FSHN F111, C: Nil, CH: 2	(FSHN N472) Dietetics Counseling for Chronic Diseases (MR) (MR) CH: 3
(ENGL101) English Comm. Skills I (UR) P: Nil C: Nil CH: 3	(APSC310) Human Anatomy and Physiology (MR) P: BIOL101 C: BIOL101, APSC381 CH: 3	(FSHN F311) Food Analysis (MR) P: FSHN F111, CHEM201, CHEM281 C: Nil, CH: 2	(FSHN F211) Food Sanitation (MR) P: FSHN F111 C: BIOL201 CH: 3	(CHEM102) Chemistry II (MR) P: CHEM101 C: CHEM182 CH: 3	(FSHN N371) Institutional Food Systems Management (MR) P: FSHN N162, FSHN N261, C: Nil, CH: 3	(FSHN 470) Internship (MR) P: After 80 credits, FSHN F311, FSHN F414 + FSHN N371 + all CR, C: Nil, CH: 3	FSHN **** Elective 2 (ME) CH: 3
(CHEM101) Chemistry I (CR) P: Nil C: CHEM181 CH: 3	(APSC381) Human Anatomy and Physiology Lab (MR) P: Nil C: APSC310 CH: 1	(FSHN F381) Food Analysis Lab (MR) P: Nil C: FSHN F311 CH: 1	(BIOL201) Microbiology (MR) P: BIOL101 C: BIOL281 CH: 3	(CHEM182) Chemistry II Lab (MR) P: Nil C: CHEM102 CH: 1	(FSHN F411) Food Chemistry (MR) P: FSHN F111, CHEM201, CHEM281 C: Nil, CH: 3	(FSHN N471) Community Nutrition (MR) P: FSHN N162, FSHN N362, C: Nil, CH: 3	(FSHN F480) New Product Development (CR) P: FSHN F311, FSHN F411, FSHN F313, FSHN F414, FSHN F211 C: Nil, CH: 3
(CHEM181) Chemistry I Lab (CR) P: Nil C: CHEM101 CH: 1	(CHEM201) Organic Chemistry I (MR) P: CHEM101 C: CHEM281 CH: 3	(PHYS101) Physics I (CR) P: Nil C: PHYS181 CH: 3	(BIOL281) Microbiology Lab (MR) P: Nil C: BIOL201 CH: 1	(FSHN F313) Food Microbiology (MR) P: FSHN F111, BIOL201, BIOL281 C: Nil, CH: 3	APSC201 Management and Business Skills (CR) CH: 3	(FSHN N481) Medical Nutrition Therapy (MR) P: FSHN N162, FSHN N362, FSHN N262, APSC310, C: Nil, CH: 3	FSHN**** Elective 3 (ME) CH: 3
(MATH101) Calculus I (CR) P: Nil C: Nil CH: 3	(CHEM281) Organic Chemistry I Lab (MR) P: Nil C: CHEM201 CH: 1	(PHYS181) Physics I Lab (CR) P: Nil C: PHYS101 CH: 1	(FSHN N362) Nutrition in Life cycle (MR) P: FSHN N162 C: Nil, CH: 3	(FSHN N261) Principles of Food Preparation (MR) P: FSHN N162, FSHN F111 C: Nil, CH: 3	(APSC301) Research skills (CR) P: STAT201 C: Nil CH: 3	FSHN **** Elective 1 (ME) CH: 3	
(BIOL101) Biology I (CR) P: Nil C: BIOL181 CH: 3	(FSHN N162) Introduction to Human Nutrition (CR) P: BIOL101, CHEM101 C: Nil CH: 3	(FSHN N262) Nutritional Biochemistry (MR) P: FSHN N162, CHEM201, CHEM281, 1, C: Nil, CH: 3	(ARAB101) Arabic I (UR) P: Nil C: Nil CH: 3	(FSHN F414) Food Engineering (MR) P: MATH101, FSHN F111, PHYS101, STAT201, C: Nil, CH: 3			
(BIOL181) Biology I Lab (CR) P: Nil C: BIOL101, CH: 1	(FSHNF111) Introduction to Food Science (CR) P: CHEM101, CHEM101 C: Nil, CH: 3	(ARAB201, ISLM201, PHIL201, SOC201) **University Elective (UE) (MNGT313) Entrepreneurship (UR), P: Nil, C: Nil, CH: 3		NOTE: <i>ARAB201: Readings in Arabic Literature, ISLM201: Omani History, PHIL201: Professional Ethics, SOC201: Social Problems in a Changing World</i>		**NOTE <i>1: Univ. Elective for those who Registered before 2014. 2: Entrepreneurship will replace Univ. Elective for those who Registered on or after 2014.</i>	NOTE: First Four Semesters fulfil Diploma Students' Requirement of 66 Credit Hours.

UR- Univ. Requirement, UE- Univ. Elective, CR- College Requirement, MR- Major Requirement, ME- Major Elective, P: Pre-requisite C: Co-requisite, CH: Credit Hours



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Bachelor of Science (B.S) (Food Science and Human Nutrition)

11. MAPPING of ASSESSMENT of LEARNING OUTCOMES - Y E A R 1

KEY: F = Formative assessment S = Summative assessment FS = Formative & Summative assessment

Upon completion of the program, students will be able to:	REQUIRED COURSES									
	ENGL 101	SOCH101	MATH1001	CHEM 1001	BIOL1 001	BIOL2001	CHEM100 2	FSHN1061	FSHN106 2	
KNOWLEDGE AND UNDERSTANDING										
Differentiate the concepts of food science from that of nutrition										FS
Identify general food safety hazards and practice safe handling of food					F	FS				FS
Describe the basic biochemistry of food components and principles of food preservation and processing				FS		F	FS			FS
Comprehend the concept of food security										FS
Discuss the activities of food scientists in ensuring the safety and security of our food supply					F	F				FS
SUBJECT-SPECIFIC INTELLECTUAL SKILLS										
Plan and execute basic laboratory work as well as research or development work				FS	FS	FS	FS			
Evaluate the outcomes and draw valid conclusions	F		S	FS	FS	FS	FS			
Design an experiment, investigation or survey or other means to test an hypothesis or proposition		F		F	F	FS	FS			
Critically analyze information, synthesize and summarize outcomes			S	FS	FS	FS	FS			
Compare and contrast the global food distribution and consumption patterns		F								F
Analyze the reasons for development of food laws an regulations based on the concepts of food safety, HACCP etc.					F	F				F
Understand and interpret food labeling and its significance in food industry										F
PROFESSIONAL / PRACTICAL SKILLS										
Understand and apply the underlying principles and methods of food processing and preservation					F	F				FS
Apply the concepts of chemical analysis in food science for the proximate analysis of food materials				F			F			F
Communicate effectively using appropriate scientific terminology used in the general context of food	F									FS
Plan, conduct and report on investigations including the use of secondary data				FS	FS	FS	FS			
Collect and record accurately information or data in the library, laboratory or field, and summarize it	F			FS	FS	FS	FS			
Devise, plan and undertake field and laboratory investigations in a responsible and safe manner				FS	FS	FS	FS			
Select and apply a range of methods to solve problems in food related issues		F								FS
Interpret practical results and present results/research finding in different formats	F			FS	FS	FS	FS			



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Upon completion of the program, students will be able to:

REQUIRED COURSES:

	ENGL 101	S O C I A L S C I E N C E 100	M A T H 101	CHE M10	BIOL10 0	BIOL20 0	CHE M10 02	FSHN 1061
TRANSFERABLE SKILLS (INCLUDING FOR EMPLOYABILITY)								
Communication Skills								
Acknowledge differences and able to adapt to difference of opinions while being open minded	FS	FS						F
Being assertive while accepting feedback at the same time	FS	FS		FS	FS	FS	FS	
To be concise and clear and provide specific details supported by scientific data and publications	FS	FS		FS	FS	FS	FS	FS
Teamwork and interpersonal skills								
Perform live projects as a team and contribute to strengthen each other's weaknesses		F						F
Take responsibility and claiming ownership for their responsibility while working in a team		F		F	F	F	F	
Always prepared to listen to team members		F		F	F	F	F	
Information Literacy and Study Skills								
Recognise a need for information and distinguish ways of addressing gap and appropriate sources	F			F	F	F	F	
Strategically locate and access information to construct research strategies								F
Compare and evaluate information	F	FS		FS	FS	FS	FS	F
Synthesise and create missing information			FS	FS	FS	FS	FS	
Numeracy								
Appreciate issues of sample selection, accuracy, precision and uncertainty during collection recording				FS	FS	FS	FS	
Prepare process, interpret and present data using appropriate qualitative and quantitative techniques			S	FS	FS	FS	FS	
Leadership and entrepreneurship								
Develop good problem solving and decision making abilities			F	FS	FS	FS	FS	F
Understand and assess market needs for development of new food products								FS



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Bachelor of Science (B.S) Food Science and Human Nutrition

12. MAPPING of ASSESSMENT of LEARNING OUTCOMES - YEAR 2

KEY: **F** = Formative assessment **S** = Summative assessment **FS** = Formative & Summative assessment

Upon completion of the program, students will be able to:

REQUIRED COURSES:

	PHIL 101	ISLM 101	ARAB 101	PHYS 101	FSHN 2011	FSHN 2062	FSHN 3062	FSHN 2013	MNGT 313
KNOWLEDGE AND UNDERSTANDING									
Differentiate the concepts of food science from that of nutrition					F	F	F	F	
Identify general food safety hazards and practice safe handling of food					F			FS	
Describe the basic biochemistry of food components and principles of food preservation and processing				FS	S	FS	FS		
Comprehend the concept of food security					F			FS	
Discuss the activities of food scientists in ensuring the safety and security of our food supply					FS			FS	
SUBJECT-SPECIFIC INTELLECTUAL SKILLS									
Plan and execute basic laboratory work as well as research or development work				FS	FS	FS	FS		F
Evaluate the outcomes and draw valid conclusions		F		FS		FS	FS		
Design an experiment, investigation or survey or other means to test an hypothesis or proposition	F			F		F	F		
Critically analyze information, synthesize and summarize outcomes				FS		FS	FS		F
Compare and contrast the global food distribution and consumption patterns	F							F	
Analyze the reasons for development of food laws and regulations based on the concepts of food safety, HACCP etc.								FS	
Understand and interpret food labeling and its significance in food industry					F			FS	
PROFESSIONAL / PRACTICAL SKILLS									
Understand and apply the underlying principles and methods of food processing and preservation					S			F	
Apply the concepts of chemical analysis in food science for the proximate analysis of food materials				F	F	F	F		
Communicate effectively using appropriate scientific terminology used in the general context of food		F			FS			FS	
Plan, conduct and report on investigations including the use of secondary data				FS		FS	FS	F	F
Collect and record accurately information or data in the library, laboratory or field, and summarize it		F		FS		FS	FS		
Devise, plan and undertake field and laboratory investigations in a responsible and safe manner				FS		FS	FS		F
Select and apply a range of methods to solve problems in food related issues	F				FS			FS	
Interpret practical results and present results/research finding in different formats		F		FS	F	FS	FS		



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Upon completion of the program, students will be able to:

REQUIRED COURSES:

PHIL10 1	ISLM10 1	ARAB1 01	PHYS1 01	FSHN20 11	FSHN20 62	FSHN30 62	FSHN20 13	MNGT3 13
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TRANSFERABLE SKILLS (INCLUDING FOR EMPLOYABILITY)								
Communication Skills								
Acknowledge differences and able to adapt to difference of opinions while being open minded	FS	FS			F	FS	FS	FS
Being assertive while accepting feedback at the same time	FS	FS	FS	FS	F	F		FS
To be concise and clear and provide specific details supported by scientific data and publications	FS	FS	FS	FS	FS	FS	FS	F
Teamwork and interpersonal skills								
Perform live projects as a team and contribute to strengthen each other's weaknesses	F				F	F		F
Take responsibility and claiming ownership for their responsibility while working in a team	F		F		FS	FS		FS
Always prepared to listen to team members	F		F		F	F		F
Information Literacy and Study Skills								
Recognise a need for information and distinguish ways of addressing gap and appropriate sources	F	F		FS	F	F		FS
Strategically locate and access information to construct research strategies					FS	FS		FS
Compare and evaluate information	FS	F	FS				FS	FS
Synthesise and create missing information			FS		FS	FS		
Numeracy								
Appreciate issues of sample selection, accuracy, precision and uncertainty during collection recording			FS	F	FS	FS	F	FS
Prepare process, interpret and present data using appropriate qualitative and quantitative techniques			FS	F	FS	FS	F	FS
Leadership and entrepreneurship								
Develop good problem solving and decision making abilities	FS		FS	F	FS	FS	FS	FS
Understand and assess market needs for development of new food products				F				S



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12. MAPPING of ASSESSMENT of LEARNING OUTCOMES - YEAR 3

KEY: F = Formative assessment S = Summative assessment FS = Formative AND Summative assessment

Upon completion of the program, students will be able to:

REQUIRED COURSES:

STAT20 01	FSHN30	11 FSHN30	13 FSHN30	7 0	FSHN30 71	FSHN30	12 FSHN40	7 2	APSC4 49
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	STAT20 01	FSHN30	11 FSHN30	13 FSHN30	7 0	FSHN30 71	FSHN30	12 FSHN40	7 2	APSC4 49
KNOWLEDGE AND UNDERSTANDING										
Differentiate the concepts of food science from that of nutrition		FS	FS	F	FS	FS	F			
Identify general food safety hazards and practice safe handling of food			FS	FS	FS		FS			
Describe the basic biochemistry of food components and principles of food preservation and processing		FS	FS	FS	FS	FS	FS			
Comprehend the concept of food security			F	F	F		F			
Discuss the activities of food scientists in ensuring the safety and security of our food supply		FS	F	F	F	FS	F			
SUBJECT-SPECIFIC INTELLECTUAL SKILLS										
Plan and execute basic laboratory work as well as research or development work	F		FS	F	FS		F			FS
Evaluate the outcomes and draw valid conclusions	FS	F	F	FS	F	F	FS			FS
Design an experiment, investigation or survey or other means to test an hypothesis or proposition	F			FS			FS			FS
Critically analyze information, synthesize and summarize outcomes	S	S		F			S	F		FS
Compare and contrast the global food distribution and consumption patterns			FS	FS	FS		FS			
Analyze the reasons for development of food laws and regulations based on the concepts of food safety, HACCP etc.		FS		FS			FS	FS		
Understand and interpret food labeling and its significance in food industry		F	S	FS	S	F	FS			
PROFESSIONAL / PRACTICAL SKILLS										
Understand and apply the underlying principles and methods of food processing and preservation		FS	FS	FS	FS	FS	FS	FS		
Apply the concepts of chemical analysis in food science for the proximate analysis of food materials		F	F		F	F				
Communicate effectively using appropriate scientific terminology used in the general context of food		FS	FS	FS	FS	FS	FS	FS		FS
Plan, conduct and report on investigations including the use of secondary data	FS		F	FS	F		FS			
Collect and record accurately information or data in the library, laboratory or field, and summarize it	F	FS	FS		FS	FS				
Devise, plan and undertake field and laboratory investigations in a responsible and safe manner	FS		F		F					F
Select and apply a range of methods to solve problems in food related issues		F		FS		F	FS			FS
Interpret practical results and present results/research finding in different formats	FS	FS	FS		FS	FS				FS



PROGRAM SPECIFICATION

Bachelor of Science (B.S) Food Science and Human Nutrition

Upon completion of the program, students will be able to:

REQUIRED COURSES:

STAT20 01	FSHN30 11	FSHN30 13	FSHN30 70	FSHN30 71	FSHN30 12	FSHN30 72	APSC4 49
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TRANSFERABLE SKILLS (INCLUDING FOR EMPLOYABILITY)	STAT20 01	FSHN30 11	FSHN30 13	FSHN30 70	FSHN30 71	FSHN30 12	FSHN30 72	APSC4 49
Communication Skills								
Acknowledge differences and able to adapt to difference of opinions while being open minded Being assertive while accepting feedback at the same time			F	F		F	F	F
To be concise and clear and provide specific details supported by scientific data and publications	F			FS			FS	FS
Teamwork and interpersonal skills								
Perform live projects as a team and contribute to strengthen each other's weaknesses	F		F			F		F
Take responsibility and claiming ownership for their responsibility while working in a team	F	FS	F	F	FS	F	F	F
Always prepared to listen to team members	F		FS			FS		F
Information Literacy and Study Skills								
Recognise a need for information and distinguish ways of addressing gap and appropriate sources		FS	F	FS	FS	F	FS	FS
Strategically locate and access information to construct research strategies	F		F	FS		F	FS	FS
Compare and evaluate information	FS	FS	FS	FS	FS	FS	FS	FS
Synthesise and create missing information	S	F	FS		F	FS		FS
Numeracy								
Appreciate issues of sample selection, accuracy, precision and uncertainty during collection recording	F		FS			FS		FS
Prepare process, interpret and present data using appropriate qualitative and quantitative techniques	FS		F	FS		F	FS	FS
Leadership and entrepreneurship								
Develop good problem solving and decision making abilities	F		FS	FS		FS	FS	FS
Understand and assess market needs for development of new food products	FS		FS			FS		FS



PROGRAM SPECIFICATION

Bachelor of Science (B.S) Food Science and Human Nutrition

12. MAPPING of ASSESSMENT of LEARNING OUTCOMES - YEAR 4

KEY: **F** = Formative assessment **S** = Summative assessment **FS** = Formative & Summative assessment

Upon completion of the program, students will be able to:

REQUIRED COURSES:

	FSHN4081	FSHN4048	FSHN4072	APSC4089	FSHN4082	80	FSHN4085	FSHN4095
KNOWLEDGE AND UNDERSTANDING								
Differentiate the concepts of food science from that of nutrition	F	F	F		F	F	F	F
Identify general food safety hazards and practice safe handling of food	FS	FS			FS	FS	FS	FS
Describe the basic biochemistry of food components and principles of food preservation and processing		FS			FS	FS	FS	FS
Comprehend the concept of food security			FS		F	F	F	F
Discuss the activities of food scientists in ensuring the safety and security of our food supply		F	FS		FS	FS	FS	FS
SUBJECT-SPECIFIC INTELLECTUAL SKILLS								
Plan and execute basic laboratory work as well as research or development work				FS	FS	FS	FS	FS
Evaluate the outcomes and draw valid conclusions				FS	F	F	F	F
Design an experiment, investigation or survey or other means to test an hypothesis or proposition				FS	FS	FS	FS	FS
Critically analyze information, synthesize and summarize outcomes				FS	F	F	F	F
Compare and contrast the global food distribution and consumption patterns								
Analyze the reasons for development of food laws and regulations based on the concepts of food safety, HACCP etc.	FS	FS	FS		F	F	F	F
Understand and interpret food labeling and its significance in food industry	FS	FS	FS		FS	FS	FS	FS
PROFESSIONAL / PRACTICAL SKILLS								
Understand and apply the underlying principles and methods of food processing and preservation	FS	FS	FS		FS	FS	FS	FS
Apply the concepts of chemical analysis in food science for the proximate analysis of food materials		FS			F	F	F	F
Communicate effectively using appropriate scientific terminology used in the general context of food				FS	FS	FS	FS	FS
Plan, conduct and report on investigations including the use of secondary data					F	F	F	F
Collect and record accurately information or data in the library, laboratory or field, and summarize it		FS			FS	FS	FS	FS
Devise, plan and undertake field and laboratory investigations in a responsible and safe manner				F	FS	FS	FS	FS
Select and apply a range of methods to solve problems in food related issues	FS	FS	FS	FS	FS	FS	FS	FS
Interpret practical results and present results/research finding in different formats	FS	FS	FS	FS	FS	FS	FS	FS



PROGRAM SPECIFICATION

Bachelor of Science (B.S) Food Science and Human Nutrition

Upon completion of the program, students will be able to:

REQUIRED COURSES:

FSHN4081	FSHN4048	FSHN4072	AFSC4099	FSHN4082	FSHN4085	FSHN4095
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TRANSFERABLE SKILLS (INCLUDING FOR EMPLOYABILITY)

Communication Skills	FSHN4081	FSHN4048	FSHN4072	AFSC4099	FSHN4082	FSHN4085	FSHN4095
Acknowledge differences and able to adapt to difference of opinions while being open minded	F	F	FS	F	F	F	F
Being assertive while accepting feedback at the same time	F	F	F	F	F	F	F
To be concise and clear and provide specific details supported by scientific data and publications	FS	FS	FS	FS	F	F	F
Teamwork and interpersonal skills							
Perform live projects as a team and contribute to strengthen each other's weaknesses				F	F	F	F
Take responsibility and claiming ownership for their responsibility while working in a team	F	F	F	F	F	F	F
Always prepared to listen to team members	FS	FS	FS	F	F	F	F
Information Literacy and Study Skills							
Recognise a need for information and distinguish ways of addressing gap and appropriate sources	F	F	FS	FS	FS	FS	FS
Strategically locate and access information to construct research strategies	F	F	FS	FS	F	F	F
Compare and evaluate information	F	F	FS	FS	FS	FS	FS
Synthesise and create missing information	F	F	FS	FS	F	F	F
Numeracy							
Appreciate issues of sample selection, accuracy, precision and uncertainty during collection recording				FS	F	F	F
Prepare process, interpret and present data using appropriate qualitative and quantitative techniques		FS		FS	FS	FS	FS
Leadership and entrepreneurship							
Develop good problem solving and decision making abilities	F	FS	F	FS	F	F	F
Understand and assess market needs for development of new food products		F		FS			

