University of Tabuk
Faculty of Science
Food Science and Nutrition Department

توزيع مقررات الخطة الدراسية على المستويات

السنة الدراسية الثانية

م	رمز المقرر	اسم المقرر	عدد الساعات الفعلية			عدد الساعات المعتمدة	رمز المتطلب المتزامن	رمز المتطلب السابق
المستوى الثالث:								
			نظري	عملي	تدريب			
1.	SFS1201	Introduction to Sustainable Food Systems مقدمة في النظم الغذائية المستدامة	3	-	-	3	-	-
2.	SFS1202	Principles of Food Security مبادئ الأمن الغذائي	2	-	-	2		-
3.	BIO1201	Principles of Environmental Sustainability **إستكشاف 1 (متطلب كلية)** مبادئ الاستدامة البيئية	2	-	-	2		-
4.	GEE_L	(مقرر اختياري لغات) Elective Languages Course	3	-	-	3	-	-
5.	SFS1203	Food Chemistry كيمياء الأغذية	2	2	-	3		-
6.	SFS1204	Principles of Food Technology مبادئ تكنولوجيا الأغذية	2	2	-	3		-
7.	PHYS1206	Natural Resources **إستكشاف 1 (متطلب كلية)** الموارد الطبيعية	2	-	-	2		-
المجمـــــــوع			**16**	**4**	**-**	**18**		

م	رمز المقرر	اسم المقرر	عدد الساعات الفعلية			عدد الساعات المعتمدة	رمز المتطلب المتزامن	رمز المتطلب السابق
المستوى الرابع:								
			نظري	عملي	تدريب			
1.	SFS1205	Human Nutrition تغذية الإنسان	3	-	-	3		-
2.	SFS1206	Food Microbiology ميكروبيولوجيا الأغذية	2	2	-	3		BIO1101
3.	STAT1251	Introduction to Biostatistics مقدمة في الإحصاء الحيوي	2	2	-	3		MATH1102
4.	SFS1207	Food Analysis تحليل الأغذية	2	2	-	3		SFS1203
5.	SFS1208	Animal Production Systems نظم الإنتاج الحيواني	3	0	-	3		SFS1201
6.	SFS1209	Crop Production إنتاج المحاصيل	2	2	-	3		
المجمـــــــوع			**14**	**8**	**-**	**18**		

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السنة الدراسية الثالثة

المستوى الخامس:								
م	رمز المقرر	اسم المقرر	عدد الساعات الفعلية			عدد الساعات المعتمدة	رمز المتطلب المتزامن	رمز المتطلب السابق
			نظري	عملي	تدريب			
.1	ISLS1201	Ethics and Civilized Values in Islam الاخلاق والقيم الحضارية في الإسلام	2	-	-	2		ISLS1101
.2	SFS1301	Supply Chain and Retail Management إدارة سلاسل التوريد والتجزئة	3	-	-	3		SFS1202
.3	SFS1302	Sustainable Technology for Food production التكنولوجيا المستدامة لإنتاج الغذاء	2	-	-	2		SFS1209
.4	SFS1303	Food Safety and Risk Management سلامة الأغذية وإدارة المخاطر	3	-	-	3		SFS1206
.5	GEE_T	(مقرر اختياري تقنية) Elective Technology Course	2	2	-	3	-	-
.6	BIO1208	Biodiversity **إستكشاف 1 (متطلب كلية)** التنوع الأحيائي	2	-	-	2		
.7	SFS1304	Human Health in Sustainable Food Systems صحة الإنسان في النظم الغذائية المستدامة	3	-	-	3		
المجمـــــــــــوع			**17**	**2**	**-**	**18**		

المستوى السادس:								
م	رمز المقرر	اسم المقرر	عدد الساعات الفعلية			عدد الساعات المعتمدة	رمز المتطلب المتزامن	رمز المتطلب السابق
			نظري	عملي	تدريب			
.1	SFS1305	Diary and Meat Technology تكنولوجيا الألبان واللحوم	2	2	-	3	-	-
.2	SFS1306	Oil and Fat Technology تكنولوجيا الزيوت والدهون	2	2	-	3		SFS1203
.3	SFS1307	Sustainable Food Supply Chains استكشاف ٢ (ترابط) سلاسل الإمداد الغذائي المستدامة	2	-	-	2		SFS1301
.4	SFS1308	**Sustainability and Food Packaging** **استكشاف ٢ (ترابط)** **الاستدامة وتغليف الأغذية**	**3**	**-**	**-**	**3**		**-**
.5	SFS1309	Food Product Innovation and Development ابتكار وتطوير المنتجات الغذائية	2	2	-	3	-	SFS1204
.6	GEE_C	(مقرر اختياري ثقافات) Elective Cultures Course	2	-	-	2	-	-
.7	GEE_P	(اختياري تطوير مهني وشخصي) Elective Professional and Personal Development	2	-	-	2		-
المجمـــــــــــوع			**15**	**6**	**-**	**18**		

السنة الدراسية الرابعة

المستوى السابع:

م	رمز المقرر	اسم المقرر	عدد الساعات الفعلية			عدد الساعات المعتمدة	رمز المتطلب المتزامن	رمز المتطلب السابق
			نظري	عملي	تدريب			
.1	SFS1401	Food Quality Assurance ضمان جودة الغذاء	2	2	-	3		SFS1207 SFS1303
.2	SFS1402	Food Business Management إدارة الأعمال الغذائية	2	2	-	3	-	-
.3	SFS1403	Food Waste Management استكشاف ٢ (ترابط) إدارة مخلفات الأغذية	2	2	-	3		-
.4	SFS1404	Food Regulations and Policies أنظمة وسياسات الأغذية	3	-	-	3		-
.5	SFS1498	Project مشروع	3	-	-	3		SFS1309
.6	SFS14XX	Elective Course مقرر اختياري	3	-	-	3		-
المجموع			15	6	-	18		

المستوى الثامن:

م	رمز المقرر	اسم المقرر	عدد الساعات الفعلية			عدد الساعات المعتمدة	رمز المتطلب المتزامن	رمز المتطلب السابق
			نظري	عملي	تدريب			
1.	SFS1495	Training إستكشاف 3 (تطبيق) تدريب	-	-	12	3		Completion at least 120 credit hours
2.	SFS14XX	Elective Course مقرر اختياري	3	-	-	3		-
3.	SFS14XX	Elective Course مقرر اختياري	3	-	-	3		-
المجموع			6	-	12	9		

Courses Description

SFS 1201 (Introduction to Sustainable Food Systems):

This course teaches students how to apply a systems perspective to food production, distribution, consumption, and disposal. This course will introduce students to the concepts and issues related to the sustainability of food systems. The course focuses on the entire agri-food system from farm to fork (and back).

SFS 1202 (Principles of Food Security):

Learn about the concept of food security, its determinants, and results. Learn the basic factors behind food security such as economic, political, health and environmental factors, identify the main factors of food insecurity in middle-income and developing countries, and understand the current situation and future challenges of food security at the global and Arab levels. Develop knowledge and skills in food security assessment. Identifying the economic, political, environmental and health methods used to measure food security.

SFS 1203 (Food Chemistry):

This course develops the knowledge of the physical, chemical, and functional properties of water, carbohydrates, lipids, and proteins in foods, and the role of enzymes during food processing. Chemical changes and interactions that occur between the basic components of food during production and storage. Also, the stability of vitamins and pigments.

SFS 1204 (Principles of Food Technology):

This course introduces the fundamental principles of food technology, including food classification, composition, processing, and preservation. It covers the causes of food spoilage, food poisoning, foodborne intoxications, and infections, along with various food preservation and processing methods. Key topics include thermal processing techniques.

SFS1205 (Human Nutrition):

The course provides a comprehensive examination of the basic principles of human nutrition, with an emphasis on the essential nutrients required for optimal health and well-being. The student will explore the biochemical, physiological, and behavioral aspects of nutrition, and gain an understanding of the role nutrients play in growth, development, and disease prevention.

SFS1206 (Food Microbiology):

The course offers students an overview of the types of organisms significant, in food production and their impact on food spoilage and illnesses transmitted through food consumption caused by contamination sources during food preparation and storage processes. Furthermore, it delves into evaluating the conditions under which food is processed to regulate the proliferation of microorganisms in edibles while enhancing understanding of fermentation, in food products.

SFS1207 (Food Analysis):

This course presents the basics of quantitative and qualitative physical and chemical methods for food analysis, good practices in laboratories and dealing with chemical analysis of foods, methods for taking food samples, preparation of standard and buffer solutions, methods for estimating and detecting moisture, carbohydrates, ash, fats, proteins, and vitamins using standard procedures for food analysis and composition and modern devices and techniques used in food analysis special spectroscopy and chromatography.

SFS1208 (Animal Production Systems):

This course introduces students to the principles and technologies of animal production, covering dairy, meat, poultry, and aquaculture systems. The course emphasizes the biological, economic, and environmental factors affecting production efficiency. Practical sessions will provide hands-on experience in milk, egg, and meat quality

assessment, along with farm visits and production system evaluation. Understand the biological and economic interrelationships that underpin animal production, and how challenges to sustainability are addressed by producers in each animal sector.

SFS1209 (Crop Production):

This course provides a broad understanding of the principles and practices of crop production, focusing on both the importance of crop production for Saudi Arabia and worldwide food production. Constraints, challenges, and opportunities will be explored. The course will cover crop plant biology and introduce agronomic management practices for crop production.

SFS1301 (Supply Chain and Retail Management):

Postharvest management seeks to balance the requirements of food production, food safety, and sustainability goals in ways that increase the freshness of raw foods and reduce waste. The Postharvest Management course examines methods for controlling contamination and spoilage of raw food material at each stage of postharvest handling, cleaning, packaging, transportation, storage, preparation, and retail. Methods for reducing losses and improving food safety, such as storage-precooling, pre-storage treatments, low temperature storage, controlled atmosphere storage, hypobaric storage, irradiation and low-cost storage structures.

SFS1302 (Sustainable Technology for Food production):

This course focuses on the techniques of greenhouses, the applications of modern technologies in their operation, greenhouses water and climate management. Showcase examples of greenhouse systems and techniques for controlling environmental conditions. The course covers the latest energy and water-efficient technologies such as robotics, sensors, and genetics techniques. Students will gain an appreciation for the science and technology that drive high-tech greenhouse production and management

SFS1303(Food Safety and Risk Management):

This course explores food safety and risk management principles, focusing on producing safe food and water free from pathogens and contaminants. Students will learn to assess microbiological, chemical, and physical risks, balance safety with economic considerations, and apply international standards. Key topics include hazard identification, risk assessments, allergen management, regulatory frameworks, and crisis management to ensure public health and sustainable food production

SFS1304 (Human Health in Sustainable Food Systems):

This course will develop the student's knowledge of human health in relation to food security, malnutrition, and dietary practices, diet quality and quality, food availability and outcomes on human health. The course will also investigate how environmental, economic, political, social, and cultural factors as drivers in the diet affect food system selection and availability, as well as their impact on human health. Recognizing the concept of health and the integration of human, animal, and environmental health.

SFS1305 (Dairy and Meat Technology):

In this course, students will become familiar with the basic components of the scientific and technological aspects of dairy and meat products. Theoretical content covers milk and meat composition, processing technologies, and quality assurance systems. The course explores the microbiological and chemical changes during product processing and preservation.

SFS1306 (Oil and Fat Technology):

This course is planned to impart the knowledge and different skills about edible fats and oils technology, the important sources in KSA, classification, extraction methods, physico-chemical characteristics, refining methods, hydrogenation, interesterification, and the manufacture of oleogel, deterioration and preservation, manufacture of some oil products and essential oils.

SFS1307 (Sustainable Food Supply Chains):

This course provides students with necessary concepts and tools enabling to manage and accelerate all process and activities contributing to deliver a product or a service in the shortest delay and the most effective method. Starting with the assurance of raw materials, passing by the manufacturing process, and finishing with the distribution of products and the delivery to customers.

SFS1308 (Sustainability and Food Packaging):

This course presents the types of food packaging materials such as plastic, paper, glass, and sterile packaging, modern packaging methods such as (smart packaging), properties of packaging materials such as (diffusion and permeability), Evaluating food packaging chemically, physically, and functionally., and applications of biological packaging. Health and safety factors for biological packaging material

SFS1309 (Food Product Innovation and Development):

This course introduces research and development related to new food products through the basic principles of developing food products from an innovative concept to the market. Emphasis will be placed on applying basic knowledge of food chemistry, food technology and related disciplines in developing new products or improving existing products.

SFS1401 (Food Quality Assurance):

In this course, students will become familiar with concepts and practices related tofood quality assurance. The course covers multiple topics, including the definition of quality and its importance, quality management systems such as HACCP and ISO,inspection and testing techniques, laws and legislation related to food quality.

SFS1402 (Food Business Management):

This course teaches students the principles of managing food businesses in sustainable food systems, including entrepreneurship, marketing, operations, financial planning, and sustainability practices. It also covers marketing principles, consumer behavior, branding, product development, pricing strategies, distribution channels, and promotional tactics.

SFS1403 (Food Waste Management):

This course aims to study the solutions proposed for the critical sustainability challenge of reducing food waste, by studying the negative impact of waste on humans, the environment, and the economy. Determine the status of food waste in the Kingdom of Saudi Arabia, and the types of food waste throughout the food supply chains. Utilization of waste from food processing industries and sustainable

food waste management technologies. Lean Six Sigma implementation in food processing to manage food waste.

SFS1404 (Food Regulations and Policies):

The History and development of international and Saudi food low Saudi Arabia will be taken as a background of to the agricultural food, drug, and cosmetic Act regulations. Production, distribution, processing, consumption, and its regulatory issues will be addressed. This course also explores the moral and ethical dimensions of food production and circulation, policies and legal tools associated with agricultural production and food consumption with special attention to the dynamics of policy development and innovation.

SFS1498 (Project):

This course aims to provide the students with the knowledge and skills required to plan, conduct, analyze, and present the findings of the research conducted. They will write a professional research thesis, use digital library resources and search engines to find suitable journals and articles relevant to their work, and extract important information from these.

Elective Courses

SFS 1410 (Food Nanotechnology):

By studying this course, the student will be introduced to the basics of nanoscience and nanotechnology, Historical development, concepts and principles, fabrication of nanomaterials, characterization, and applications of nanotechnology in food science. The use of nanotechnology to control of food quality and safety.

SFS 1411 (Food Additives):

The course explains the basic and applied principles of food additives, explains the characteristics of food additives, their divisions and importance. It also identifies the regulating food legislation and the committees responsible for allowing food additives, classification and economic importance of food additives - Desirable and undesirable uses.

SFS 1412 (Enzymes in food Processing):

This course introduce enzymes and enzymatic reactions and explain enzymatic processes used in food industry as well as introducing enzymatic food processing methods as an alternative to conventional ones.

In addition, focuses on Factors affecting enzymatic activity, Enzymatic modification of proteins, carbohydrates and lipids.

SFS 1413 (Design and Analysis of Sensory Food Science):

This course focuses on the principles and methods used in the design and analysis of sensory evaluation experiments in food science. The use of sensory testing techniques, statistical analysis of sensory data, and their applications in food quality assessment and consumer research. Also how to identify sensory attributes, design experiments, and analyze results to improve food products.

SFS 1414 (Human Eating Behavior):

The aim is to provide an overview of our current understanding of how humans perceive food, think, and make decisions about food, and the factors that may influence our choices. The unit is intended to provide a better understanding of eating choice processes in their normal and abnormal modalities.

SFS 1415 (Food Toxins):

This course describes the toxic constituents in food products. It also deals with the interactions between toxicants and nutrients. The course covers various aspects of food safety and toxicology, including studying the nature, properties, effects, and detection of **toxic substances in food and** their disease manifestations in humans. It will also include other aspects of consumer product safety.

SFS 1416 (Cereals Processing):

This course covers the following topics: the structural composition of various cereals, the essential components of cereals, including types of wheat, the chemical and physical properties of wheat proteins and starch, the industry of milling grains, and rice beating. Also, the course covers bread processing methods, the rheological properties of dough, bread stalling. Pasta making, soft wheat products, extrusion cooking, and breakfast cereals. Production of starch and high fructose corn syrup.

SFS1417 (Food Biotechnology):

This course is providing the students with basic knowledge about the applications of Biotechnology in the food industry and in food-related sectors, the fundamentals of the production of fermented foods, and the new biotechnological strategies for obtaining and transforming food products. Besides, this course also offers contents and activities that will help the students to acquire skills needed for professional opportunities in research and education.

SFS1418 (Food Engineering):

This course aims to teach students the units and dimensions of food manufacturing engineering and to gain knowledge of the principles of food engineering in food manufacturing such as the properties of fluid flow, mass transfer, heat transfer, drying, refrigeration and freezing systems, and the application of critical thinking skills to solve food processing problems using food processing engineering. In addition to applying the basics of food manufacturing engineering to various processes in food production.