School	School of Arts & Science
Major	Bachelor of Food Technology

General Education Requirements			
Code	**Title**	**Credits**	**Description**
ARAB200	Arabic Language and Literature	3	تتألف مادة اللغة العربية وآدابها لغير المتخصصين من ثلاثة أقسام، أحدها يتناول دروساً أساسية في النحو والصرف والبلاغة. والثاني يتناول مباحث في الأدب والتحليل. أما القسم الثالث فيعالج بعض تقنيات التعبير والتواصل.
CSCI200	Introduction to Computers	3	The course aims at making students competent in computer-related skills. It is supposed to develop basic computer interface knowledge by providing an overview of managing folders and files, opening a start menu, and hands-on practice on typical software applications such as Word, Excel, and PowerPoint. The student will learn how to use the new features of Microsoft Office 2017, mainly Word documents, Excel spreadsheets, and PowerPoint presentations. Moreover, the course aligns with the Cisco Networking Academy® Get Connected course, which helps students understand how to connect to the Internet.
CULT200	Introduction to Arab - Islamic Civilization	3	تُمثّل الحضارة العربية الإسلامية واحدة من أهم الحضارات في التاريخ بما أنجزته من إبداعات علمية وثقافية وحضارية تركت أثرها العظيم في تاريخ البشرية. تُشكّل هذه المادة الدراسية مقدمةً أساسية ليتعرف كل عربي على تاريخ حضارته، لا ليفتخر بها وحسب، بل ليجعل منها حافزًا يستنهض به قابليّاته وقدراته العلمية الكامنة لإعادة الاستنهاض الحضاري. يتحرك الماضي فينا دون شعورٍ واعٍ منّا، على أنّ هذا المُقرّر الدراسي يحاول أنْ يستثير الوعي الحضاري والثقافي عند الطلاب العرب، فيستفيد من هذا المخزون ليصنع أُفقًا جديدًا للمستقبل.
ENGL201	Composition and Research Skills	3	This course builds upon the skills acquired in pre-requisite courses mainly ENGL 151 to further develop students' critical thinking and academic writing competencies. Students will read and respond to a variety of texts from different disciplines and produce a research paper using analytical and critical skills in response to texts.
ENGL251	Communication Skills	3	Workplace Occupational Writing is an advanced interdisciplinary writing course emphasizing workplace and technical communication and editing appropriate to diverse professions. It incorporates practice and study of selected types of discourse employed in professional writing situations, preparing students for different systems of writing in their professional lives. Examples from the writing of workplace professionals are analyzed and used as models to demonstrate the transition from academic to professional writing.

Core Requirements			
Code	**Title**	**Credits**	**Description**
BIOC250	Biochemistry I (General)	4	The study of human biochemistry describes how the body works, and provides a basis for understanding what can, and often does, go wrong. This course aims at providing a concise coverage of the general principles of biochemistry. It covers the metabolism of proteins, lipids and carbohydrates, the synthesis of different macromolecules in cells, the reactions they undergo, the substances produced (e.g. hormones) and, their function and fate. The course also touches upon some diseases caused by enzymes deficiencies.
BIOL200	General Biology I	3	This course aims to familiarize the student with the organization and classification of living systems. The covered topics include mainly the cell structure and function, cell division, cell biochemistry, cellular respiration, DNA structure and protein function, as well as animal development and classification. This course has a separate one credit-laboratory component.
BIOL200L	General Biology I Lab	1	General Biology I lab introduces students to basic techniques and safety practices in the laboratory; reinforcing the concepts learned in General Biology I lecture. It provides hands-on experience of some of the concepts discussed in the latter course.
BIOL385	Microbiology	3	This course covers principles of microbiology with emphasizing on the diversity and structural characteristics of microorganisms, impact of microbes on everyday life and the role of microbes in the host-pathogen interactions. Moreover, in this course, you will be introduced to the world of microbiology in terms of isolation, identification and classification. Also, you will have the chance to discover examples of different groups and species of microorganisms that have direct impact on human health, mechanism of causing diseases and the beneficial effects on the biotechnology sector as applications in the food industry.
BIOL385L	Microbiology Lab	1	Microbiology laboratory is a two hours a week laboratory course with experiments in microbial culture, staining techniques, disinfection, and sterilization. Isolation of bacteria from mixed cultures. Use various metabolic reactions in the identification and classification of organisms.

BMKT250	Marketing Theory and Principles	3	This course is designed to serve as an introduction to the basic principles of Marketing, theories, and practices, and the application of these practices. By examining the present Marketing system from a managerial point of view, and having a current examples component, this course will help emphasize the Marketing principles in today's business world, taking an integrated and strategic view of formulating and implementing a coherent and competitive "Marketing Mix". Beyond traditional Marketing concepts and practices, today's marketers have added a host of new-age tools for engaging consumers, building brands, and creating customer value and relationships. Marketing more than ever is the business function that identifies customer needs and wants, determines which target markets the organization can serve best, and designs appropriate products, services, and programs to serve these markets. It is a philosophy that guides the entire organization towards understanding, serving, and satisfying consumer needs. The goal of Marketing is to build value- based relationships with customers, in conjunction with other internal and external business units. The end-result is gaining market leadership. As a result, it will help students to develop the understanding and skills necessary to become successful marketers. Marketing Theory and Principles is not just about textbook learning, rather, it challenges students to use their critical and creative skills in all aspects of Marketing, not just those covered in this course.
BSTA205	Introduction to Business Statistics	3	This course is designed to provide students with an introductory survey of many applications of descriptive and inferential statistics. Using the behaviorism and cognitivism theories that focus on facts, knowledge, concepts and skills, this course addresses the direct, indirect, and experiential strategies through lectures, workbooks, handouts, and problem-solving methods to classify and graphically present data among different measurement levels, calculate measures of location and dispersion, understand the basic probability concepts, and examine discrete and continuous probability distributions. Further, this course is designed to provide students with the needed techniques used in inferential statistics. In this course, students learn to perform and interpret several tests including confidence intervals, hypothesis testing, regression, and correlation analysis.

CHEM200	General Chemistry	3	This course is a first semester course, intended for students who desire to acquire the basic principles in chemistry. The emphasis of the course will be on the fundamental principles of general chemistry, which include terminology, qualitative concepts and quantitative skills. The general topics included in this course are: Quantum Theory of the Atom; Electrons and Periodicity; Bonding; Molecular Geometry; Hybridization; Acid/base Chemistry; Kinetics and reactions mechanism and Solubility and Complex ion equilibria.
CHEM200L	General Chemistry Lab	1	This course lab covers the principles of general chemistry with emphasizing on laboratory applications to all concepts covered in the general chemistry course as well as preparing students to the lab work. Moreover, in this course lab, you will be introduced to the world of chemistry in terms of preparing solutions, experimenting and analyzing collected data. You will also have the chance to become familiar with lab material and equipment, learn enough about chemical substances, storing and mixing material as well as their applications in the chemical and pharmaceutical fields.
CHEM255	Basic Organic Chemistry	3	This course is an introduction to the basics concepts of organic chemistry. We will cover electronic structure and bonding with an emphasis on the relation between structure and physicochemical properties. It also covers nomenclature, stereochemistry, reactivity of aliphatic hydrocarbons, aromatic compounds, alcohols, aldehydes, ketones, carboxylic acids and derivatives in addition to the practical aspects of organic chemistry in numerous health and daily life related situations.
CHEM255L	Basic Organic Chemistry Lab	1	CHEM255L is a laboratory course to teach the students several common organic chemistry techniques. Emphasis is placed on experimental precision and accurate results as well as safe laboratory procedures. This laboratory course is for students with good aptitude for synthesis in organic chemistry and who want to learn the preparation, isolation, and identification of organic compounds. Students will have also the opportunity to explore interesting areas of organic chemistry and work more independently on the laboratory.

NUTR250	Basic Nutrition	3	This course introduces students to the fundamental principles of human nutrition, focusing on the major nutrients, their food sources, and their roles in the body. Topics include nutrient digestion, absorption, and metabolism, as well as the physiological functions of macronutrients and micronutrients. The course also provides an overview of dietary guidelines and the characteristics of a balanced diet, emphasizing their importance in promoting health and preventing disease.

Major Requirements			
Code	**Title**	**Credits**	**Description**
FDSC300	Technology of Food Products	3	Introduction to the different technologies involved in food production from raw materials to the end product. Application of biotechnology to the production of raw materials, as well as to the production, processing, storage, packaging, preparation of food products is briefly discussed. Different chemical, microbiological, and physical changes that occur to food are introduced as well.
FDSC300L	Technology of Food Products Lab	1	This laboratory course complements theoretical knowledge by offering students hands-on experience in common methods of food analysis and processing. Students will learn and apply analytical techniques to assess the physical, chemical, and microbiological properties of food products. Practical sessions will focus on evaluating food quality, ensuring compliance with standards, and understanding how processing techniques impact the final product
FDSC355	Food Microbiology II	3	This course examines the role of microorganisms in food systems, focusing on their impact on food preservation, safety, and quality. It examines the intrinsic and extrinsic factors that influence microbial growth in food. It delves into the microorganisms typically found in various food categories, including meat, fruits, vegetables, milk, and dairy products. The course explains the mechanisms by which these microorganisms cause food spoilage and the potential health risks associated with foodborne pathogens. It explores various food preservation techniques, such as chemical and biological control, high-temperature processing, low-temperature storage, drying, and modified atmosphere packaging. By integrating theory and practice, this course provides students with the tools to address microbial challenges in food systems.
FDSC355L	Food Microbiology II Lab	1	This laboratory course provides hands-on experience in food microbiology, with weekly experiments focused on the environmental influences and control of microbial growth, food preservation techniques, total plate count, and surface contamination testing. Students will analyze the microbiota of various foods and water and enumerate indicator microorganisms, gaining practical skills in microbiological assessment and control. The course enhances students' ability to apply microbiological techniques to real-world food safety and quality scenarios.

FDSC360	Crop Production Attributes to Quality	3	This course explores the critical role of crop production in meeting the growing global demand for food, fiber, and fuel, driven by population growth, shifting dietary patterns, and biofuel consumption. It addresses the challenges, advancements, and future prospects of crop production. Key topics include pre-harvest factors influencing postharvest quality, maturity assessment, harvesting and handling techniques, precooling, storage, packaging, disease control, food safety, and ripening treatments for fruits.
FDSC365	Animal Production Attributes to Quality	3	This course investigates animal production systems and practices, including aquaculture, poultry, dairy, and beef production, with an emphasis on how these systems influence the quality attributes required by the food industry. Students will explore the relationship between production methods and quality standards, providing insight into the factors that shape the characteristics of animal-based food products. The course prepares students to evaluate production practices and make informed decisions regarding quality assurance.
FDSC370	Food Chemistry	3	This course provides an in-depth examination of the chemical properties of biological materials, focusing on how environmental factors influence their behavior. Topics include the chemistry of major food components such as water, proteins, lipids, carbohydrates and minor food components such as vitamins, minerals, preservation agents and food additives and their functional roles within food systems. The course emphasizes the interactions among food components, their chemical stability, and their impact on food quality.
FDSC415	Dairy Technology	3	This course covers the processing and technologies involved in dairy production, from the primary production, the collection and the reception of milk to the development of various dairy products, including fluid milk, fermented products, and rennet-based items. Students will study the physical, microbiological, and chemical properties of milk and its components, along with quality control measures. Topics include key manufacturing processes and unit operations used in dairy plants such as, clarification, centrifugal separation, milk standardization, heat exchange, homogenization, deaeration, membrane filtration, concentration and cheese making by acid and rennet coagulation.

FDSC420	Food Processing	3	This course provides a foundational overview of food processing across key industry sectors, including dairy, baking, beverages, oils, fruits, vegetables, chocolate and meat. Students will explore the raw materials used, the technologies involved in processing, and the market availability of various food products. The course examines how processing methods influence food safety, nutritional composition, sensory attributes, and overall quality. Additionally, it highlights the importance of recognizing and controlling quality and production parameters to ensure food safety and product consistency. Furthermore, it familiarizes students with industrial practices and highlights the importance of adhering to safety and regulatory standards.
FDSC425L	Food Processing Lab	1	This practical laboratory course introduces students to common methods of food preservation and processing. Through hands-on experimentation, students will gain a deeper understanding of food processing techniques such as raw materials and ingredients selection and preparation (cleaning, sorting, peeling, size reduction and blanching), fruits and vegetables processing (concentration and pickling), dairy production (fermentation, cheese making, and churning), baking and meat preparation. The course emphasizes the role of these methods in maintaining food safety, extending shelf life, and retaining nutritional and sensory properties.
FDSC435	Food Toxicants and Additives	3	This course introduces students to the principles of toxicity, dose-response relationships, and the behavior of toxic chemicals in biological systems. Topics include toxicity testing, chemical disposition in the body, modifiers of toxic response, and the environmental fate of chemicals. The course also explores toxicity risk assessment, regulatory frameworks, and the impact of toxic chemicals on human and environmental health. Emphasis is placed on understanding chemical hazards in food systems, workplaces, and everyday environments. Additionally, the course delves into the realm of natural toxicants, including those found in animal foodstuffs, phytochemicals, and fungal toxins. It also examines the impact of pesticides, food additives, and toxicants generated during food processing on human health and the environment.

FDSC445	Food Quality management and HACCP	3	This course offers a comprehensive overview of food safety guidelines and standards, focusing on contemporary practices and strategies for developing, implementing, and maintaining effective food safety programs. Students will learn the principles of food quality management, with a particular emphasis on Hazard Analysis and Critical Control Points (HACCP), ensuring a strong foundation in global food safety standards and practices. The course will also explore prerequisite programs, which provide the foundation for implementing effective food safety systems by establishing hygienic conditions within food processing plants. By understanding the preliminary steps and essential principles of HACCP, students will be well-prepared to lead quality assurance initiatives in the food industry.
FDSC455	Meat, Fish and Poultry Technology	3	This course introduces the muscle food industry, covering the transition from tissue structure to carcass and final retail products. Students will explore the production, processing, and quality attributes of meat, fish, and poultry, with an emphasis on the technological and industrial aspects that influence the quality of muscle-based foods. The course covers key unit operations such as comminution, emulsification, curing, smoking, drying, and thermal processing. Students will learn about unit operations, machinery, non-meat ingredients, meat grading, and processing hygiene. By understanding these concepts, students will be equipped to assess, improve, and innovate within the muscle food industry.
FDSC460	Food Service Management	3	This course provides a comprehensive overview of managing foodservice organizations, emphasizing both business and scientific aspects. Students will study operational strategies, including profit management, location planning, and resource optimization, alongside critical topics like food safety, hygiene, and menu development. The course also covers dietary modifications for special nutritional needs and explores different types of foodservice systems, including institutional, commercial, and healthcare settings. By integrating practical examples, students will learn to evaluate and improve the efficiency and quality of foodservice operations.

FDSC475	Food Engineering	3	This course introduces the fundamental calculations and principles used in the food industry, such as mass balance, fluid mechanics, surface area optimization, and enthalpy. Students will acquire the mathematical skills necessary to perform critical calculations required for food processing and engineering applications, enhancing their problem-solving abilities in real-world scenarios. The course bridges the gap between engineering concepts and practical applications in food production.
FDSC490	Modern Topics In Food Science	3	This course introduces students to emerging trends and advancements in food science, including sensory analysis, food preservation, packaging innovations, and waste management. Students will critically analyze contemporary research articles and gain insights into modern developments in the field, fostering analytical and research skills essential for addressing current and future challenges in food science. The course encourages innovative thinking and equips students to stay updated on evolving technologies and practices.
FDSC498	Supervised Training in Food Industries	1	This course provides students with practical, supervised training in various food establishments, bridging the gap between academic knowledge and industry requirements. Through hands-on experience, students will develop skills and insights necessary for careers in food science and technology. The training concludes with the submission of a detailed report documenting the student's daily activities and learnings during the training period. This immersive experience enables students to apply theoretical knowledge to real-world industry challenges.