Faculty of Agricultural and Food Sciences

Promoting human well being through teaching, research and outreach

FAFS Faculty Portfolio
The American University of Beirut (AUB) is an institution of higher learning founded to provide excellence in education, to participate in the advancement of knowledge through research, and to serve the peoples of the Middle East and beyond. Chartered in New York State in 1863, the University bases its educational philosophy, standards, and practices on the American liberal arts model of higher education. The University believes deeply in and encourages freedom of thought and expression and seeks to foster tolerance and respect for diversity and dialogue. Graduates will be individuals committed to creative and critical thinking, life-long learning, personal integrity and civic responsibility, and leadership. Degrees awarded by the American University of Beirut are officially registered with the Ministry of Higher Education in Lebanon and with the New York State Department of Education in the United States. AUB has been accredited since 2004 as an institution by the Commission on Higher Education of the Middle States Association of Colleges and Schools. The University's accreditation was most recently reaffirmed in June 2009, after the completion of an extensive self-study that was reviewed by educational experts chosen in consultation with Middle States.

The University houses six faculties: Agricultural and Food Sciences, Arts and Sciences, Engineering and Architecture, Health Sciences, Medicine (which includes the Rafic Hariri School of Nursing), and the Suliman S. Olayan School of Business.

Highlights

- There are an estimated 54,000 AUB alumni currently living in more than 107 countries. Many of them hold prominent positions as heads of states, local or national governmental policy makers, or are internationally recognized names in an array of fields including medicine and business.
- The University has a faculty of 555 full-time equivalents and a student body of more than 7,985. With a faculty-student ratio of 1 to 12.6, AUB has long set the standard for higher education in the Middle East.
- The University became coeducational in 1922; its student body is 49 percent male and 51 percent female.
- AUB’s annual operating budget is approximately $271 million.
- The official language of instruction is English.
Overview

The Faculty of Agricultural and Food Sciences (FAFS) was established in 1952 at AUB’s main campus, modeled on the US land-grant college system. The Faculty owns and operates AUB’s Agricultural Research and Education Center (AREC), a 100-hectare research and outreach center 80 kilometers east of Beirut in the Beqaa Valley.

Over the years, FAFS distinguished itself from the land-grant model by broadening and diversifying its academic portfolio. The Faculty's response to the needs of rural and urban societies resulted in the creation of new academic programs with diverse disciplines. The culture of FAFS has also evolved into one at the intersection of nature and human wellbeing.

The past decade gave birth to ambitious plans that allowed us to rejuvenate and prepare for the challenges of the new millennium. FAFS introduced new programs, and consolidated and strengthened existing ones to offer specialties in Agribusiness and Veterinary Science.

FAFS is committed to promoting and disseminating knowledge through higher education, research and outreach in food and agriculture, nutrition and dietetics, landscape design, environment and natural resource management, and community and rural development. These fields serve as a basis for improving the livelihood and well being of people throughout Lebanon, the Middle East, and the world. FAFS trains highly dedicated and motivated individuals whose professional performance consistently illustrates AUB’s commitment of outreach to underserved communities.

FAFS offers degrees that emphasize both quantitative and analytical skills while engaging students in experiential learning and research that remain primary aims of our teaching programs. Students amply experience the practical components of the theories they learn in class through field trips, study tours, internships and experiential learning.

Researchers and students are highly involved in international collaborations spanning the globe. Much of the region's pioneering work in nutrition and dietetics, landscape design, environment and natural resource management, and community and rural development has been conducted by FAFS faculty and students both on-site and in laboratories. FAFS’s diverse strengths across multiple disciplines have elevated it to a regional center of excellence that integrates education, research and outreach while investing in future leaders who will address the global challenges of the 21st century.

Since its founding, FAFS has graduated 4,308 students encompassing 2,913 undergraduates and 1,395 graduates. In addition to 33 full-time faculty members, FAFS also benefits from the know-how and assistance of a select group of national and international experts to manage an annual average of 35 research and development projects and service contacts.

FAFS is home to the Departments of Agricultural Sciences, Animal and Veterinary Sciences, Landscape Design and Ecosystem Management, and Nutrition and Food Sciences as well as two multidisciplinary centers: The Environment and Sustainable Development Unit (ESDU); and the Agricultural Research and Education Center (AREC). In addition, FAFS initiated the establishment of the interfaculty Nature Conservation Center for Sustainable Futures (IBSAR) as an open innovative and collaborative platform that promotes conservation and sustainable use of biodiversity for the purpose of enhancing wellbeing of people and nature.
Projects conducted by FAFS continue to provide a platform for training and information sharing that support key Lebanese ministries including the Ministries of Agriculture, Environment, Health, Social Affairs, and Economy and Trade and international organizations such as UNDP, FAO, UNIDO, UNICEF and WHO.

Among our strengths at FAFS is thinking holistically outside our specific disciplines and seeking collaboration and partnership with our alumni body. FAFS challenges the assumption that educational excellence at AUB is only available to the urban and wealthy as FAFS actively seeks funding to offer scholarships for outstanding students from underserved areas to join FAFS.

**Major achievements**

- FAFS’s academic programs and curricula set the standard for colleges in Lebanon and countries throughout the MENA region.
- FAFS was the first to introduce the dietetics profession in Lebanon and the region as well as coordinate dietetic internships in internationally accredited medical centers.
- FAFS published the first food composition tables for the MENA region, which document nutrient and vitamin content of local foods and remains the only reliable and comprehensive reference for the population of the MENA region.
- FAFS is the first in the MENA region to introduce integrative and multidisciplinary programs such as agribusiness and landscape design and ecosystem management. In these programs, concepts of agriculture, business, management, and sustainability are incorporated in the curricula.
- FAFS championed the first country profile on nutrition in 1992 as well as in 2007. This is in addition to instating important policy changes in Lebanon (such as promoting the use of iodized salt). FAFS’s faculty members are routinely called upon to act as consultants and advisors for governments in the region.
- FAFS introduced genetically improved cereals (wheat, barley, and sweet corn) into the region, along with local sheep breeds and larger livestock through artificial insemination.
- FAFS was the first nongovernmental institution to reach out and work directly with farmers. Part of this outreach included developing farm machinery and implements adapted for Lebanon’s terraced small farm holdings and specialized crops.
- FAFS launched in 2002 the “Healthy Basket” project, a community supported agriculture program that assists Lebanese organic farmers to sustainably grow and sell their produce.
- FAFS helped transition the poultry sector in Lebanon from a local industry to one that exports to the region.
- FAFS was a pioneer in developing LAUBINA a nutritionally complete infant formula early in the 1960s.
Research

Major Funding Agencies
FAFS attracts funding from national, regional, and international donors including:
• European Union (EU)
• Global Environment Facility (GEF)
• International Atomic Energy Agency (IAEA)
• International Development Research Centre (IDRC)
• International Fund for Agricultural Development (IFAD)
• International Union for Conservation of Nature (IUCN)
• Mercy Corps (MCI)
• National Council for Scientific Research (CNRS)
• Nestle Middle East
• Oldways Middle East
• The Coca Cola Foundation
• United Nations agencies (ESCWA, FAO, UNDP, UNEP, UNICEF, UNIDO, WHO, ILO)
• United States Agency for International Development (USAID)
• United States Department of Agriculture (USDA)

Major International Journals
FAFS faculty members publish in leading journals in various disciplines including:
• Agribusiness
• Agronomy Journal
• American Journal of Clinical Nutrition
• Annals of Nutrition and Metabolism
• Crop Protection
• Immunology
• Journal of Dairy Science
• Journal of Phytopathology
• Middle Eastern Studies
• Obesity Research
• Plant Disease
• Poultry Science
• Veterinary Record
• Water, Air and Soil Pollution
A Leader in Agricultural Research and Education

Overview
The Department of Agricultural Sciences (AGSC) is a recognized center of academic excellence that leads in learning, discovery, application and dissemination of knowledge and technology on agricultural aspects of current and emerging issues related to local, regional, and global food, fiber, and natural resources. The Department provides opportunities for individuals from diverse backgrounds to achieve excellence in the agricultural, plant, soil, irrigation, and agribusiness sciences, through exemplary and integrative instruction, and through scholarly, creative and effective research and outreach activities.

Our faculty members lead the nation in cutting edge research on soil, irrigation, plant health and crop science and provide outstanding outreach activities through training the trainers and training the Lebanese farmers at AREC and other regions of Lebanon. Our students receive personal attention and an opportunity to obtain hands-on learning experiences (Experiential Learning Model) at AREC whereby they are groomed to be leaders in their field.

Academic Programs
AGSC offers multidisciplinary programs in agricultural sciences. The Department offers two programs at the undergraduate level, one leading to a BS degree in Agricultural Sciences and the Diploma of Ingénieur Agricole, and the other leading to a BS degree in Agribusiness. The Department also offers six graduate programs.

AGSC offers stimulating graduate programs leading to the Master of Science in agricultural economics and development, irrigation, agricultural mechanization, soil science, plant science and plant protection. Its graduates are well prepared for a productive career in Agricultural Technology, Natural Resources Management and Agribusiness and successfully contribute to the research, education, and development of sustainable agricultural production and management in the region.

AGSC graduates manage leading MENA companies in agricultural consulting, landscape, marketing of irrigation systems, seeds, fertilizers and pesticides and hold important positions in the MENA public sector, NGOs and other UN development agencies.
Research Interests

- Irrigation and recycling of waste water:
  » Design irrigation systems and recommend suitable irrigation schedules.
  » Develop recycling systems to treat waste-water.
  » Analyze water quality of recycling units and evaluate suitability for irrigation of various crops to prevent pollution and ground water contamination.
  » Improve water productivity at the farm level and apply deficit irrigation to conserve water and increase net return per unit of water.
- Plant health management:
  » Explore the biotic and abiotic factors that hinder plants from achieving their full potential as crops, ornamentals, and trees.
  » Develop and/or optimize disease detection methods.
  » Identify major plant parasitic fungi, bacteria, viruses, nematodes, weeds, insects, and other pests that attack vegetables, field crops, and fruit trees.
  » Analyze integrated pest management strategies and disease resistant vegetables.
- Conservation agriculture and environmental protection:
  » Promote no-till or reduced till systems by recommending the use of sustainable machinery to minimize disturbance of soil, maintaining soil cover and rotating crops to increase water infiltration, encouraging biodiversity, and reducing emissions of greenhouse gases.
  » Study effect of reducing costs and increasing savings in energy and capital to make farming a more profitable enterprise.
- Agricultural economics and development:
  » Research on sustainable development policies in the MENA region.
  » Study the agro-food value chain, by exploring issues of price transmission and efficiency of food labels.
  » Study the poverty and equity implications of public development policies in the region.

Major Research Facilities

- Greenhouses for plant propagation and plot experimentation.
- Growth chambers and incubators for microorganisms, insects, and plants.
- DNA and protein analysis (electrophoresis and PCR).
- GAS-chromatography and mass spectrometry.
- Atomic absorption spectrometer (micro and macro nutrient analysis).
- Soil moisture measurement equipment (both for field and lab use).
- Cell culture rooms.
- Patch clamp facility (narishige micromanipulator, Tektronix oscilloscope and so on).
- Confocal microscopy and digital imaging facility.
- Autoradiography room (Kodak X-OMAT autoradiography).
- Genetic sequencing of economic animal pathogens.

Extension and Development

- Sustainable Improvement of Marginal Lands in Lebanon. Supported by IDRC.
- Darwin Project in Coastal Vegetation Survey and Conservation in Lebanon. Supported by the Kew Royal Botanical Gardens.
- Field day at AREC about Orobanche management in potato.
- Field day at AREC about potato diseases.
- Potato seed production at AREC.
- Promoting Conservation Agriculture in the Beqaa plain.
- Promoting Saffron production in the Beqaa plain.
Partnering with the Poultry, Livestock, Dairy and Pet Industries

Overview
Since its establishment in the mid 1950s, Department of Animal and Veterinary Sciences (AVSC) has played an important role in the poultry, livestock, and dairy sectors in the region in the following areas:

- Introducing new feed supplements.
- Improving the production of dairy herds, sheep and poultry.
- Developing prevention programs and diagnostics for economic diseases.
- Pioneering various holistic approaches for the control of economic animal diseases.
- Evaluating new biotechnologies in animal health.

AVSC trains students in pathophysiology, animal nutrition and production, formulation of feed, animal husbandry, hematology, histology, pharmacology, veterinary microbiology, pathology, clinical diagnostics and the molecular biology of animal pathogens.

At the national level, the AVSC Department has largely contributed to the developments observed in the poultry sector in Lebanon and in its transition from a local industry to one that exports to the region. In addition, the AVSC Department was instrumental in establishing state of the art laboratories in Lebanon and the Middle East for the control of animal diseases and zoonoses.

Academic Programs
At the undergraduate level, AVSC awards a BS in Veterinary Science with course topics including microbiology, comparative anatomy, veterinary embryology, pathophysiology, histology and disease control. It also offers core and elective courses as part of the BS program in Agriculture on topics such as animal nutrition, animal physiology, breeding, and agricultural microbiology. Graduate programs in animal science and poultry science are also housed within this Department.

AVSC graduates are recruited from the MENA region to manage poultry and large livestock farms, feed mills, hatcheries, and businesses related to veterinary medicine, such as vaccines, diagnostics, immune-enhancers, and feed supplements.
Research Interests

- Sustainable livestock production in semi-arid areas.
- Better animal nutrition (utilization of food by-products, administration of nutritional elements, nutritional evaluation of locally produced crops for poultry under normal and hot climatic conditions, organic feed additives, dietary chelated minerals) to improve animal health conditions and production capabilities.
- Identification and reduction of major contaminants of milk to maintain proper human and animal health conditions.
- Humane molting programs for layers.
- Pathology, immunology, and control of poultry and animal diseases.
- Mutations in zoonotic viruses and relationship to pathogenicity.
- Molecular studies on veterinary diseases-etiologic agents and relationship to vaccine developments.
- Immune responses to various vaccines and field strains of economic diseases.
- Livestock-environment and environmental adaptations in animals.

Major Research Facilities

- In vitro digestibility apparatus.
- Feed analysis systems.
- Culturing and enumeration of microorganisms.
- Veterinary serology and molecular biology of disease etiologies.
- Histology.
- Immunohistochemistry technology.
- Immunoblotting in characterization of protective antigens.
- Immuno-fluorescence in diagnosis of animal diseases.
- Sodium-Dodecyl Sulphate Polyacrylamide Electrophoresis in polypeptides characterization.
- ELISA in evaluation of veterinary vaccines.
- Hemagglutination-Inhibition in diagnostics.
- ECG and EEE in veterinary clinical diagnostics.
- Ultrasound systems in veterinary anatomical examinations.
- X-Ray facility (in progress).

Extension and Development

- Partnership with LaSalle University, France: Exchange of students and faculty.
- Partnership with Szent Istvan University (SZIU), Hungary: Graduates in Veterinary Sciences from AVSC Department can pursue their studies at SZIU towards a Doctorate in Veterinary Medicine (DVM).
- Partnership with Beirut for the Ethical Treatment of Animals (BETA) and with Animals Lebanon organizations: Promote the role of the BS in Veterinary Sciences for graduating students capable of implementing Animal Welfare concepts.
- Trained farmers on livestock and animal husbandry under Sustainable Forage Development Program. Supported by USAID.
- Evaluated the ingredients of Epican Forte on avian influenza. Supported by the Dr. Rath Research Institute in California.
- Surveyed Influenza viruses in the Lebanese Animal Sector. Supported by the USA Reference Center for Zoonoses, St. Jude Children Hospital, Memphis, Tennessee.
- Evaluated new Antimicrobials to treat economic diseases in poultry. Supported by Bedson Co., Argentina.
- Established 100 free-range poultry farms and 15 Sanaan goat farms in Jezzine district. Supported by the World Rehabilitation Fund.
A ground-breaker in the MENA region

Overview
The Department of Landscape Design and Ecosystem Management (LDEM) brings together professors with various expertise in landscape architecture and environmental sciences. Joined by common goals, the Department faculty members seek to advance creative, skillful, and ethical applications of science in the design, restoration and management of landscapes.

Academic Programs
The LDEM Department awards a four-year BS in Landscape Design and Ecosystem Management and a Diploma of Ingénieur Agricole. To promote its holistic view of landscape and environment, the Department emphasizes experiential learning in theory courses and studios, engages students in internships and workshops, involves them in community projects and consultancies, and exposes them to professionals from the private and public sectors. Students enrolled in the program take courses in landscape history and theory, landscape design, landscape horticulture, as well as environmental science courses including soil and water disciplines.

The Department also awards a two-year MS in Environmental Sciences with emphasis in Ecosystem Management. This degree is part of a university wide interfaculty graduate program; the Interfaculty Graduate Environmental Sciences Program (IGESP). Graduates of the MS in Ecosystem Management are challenged to develop, through course work and thesis research, innovative, site-appropriate solutions that promote livelihood-centered natural resources management.

Research and Outreach

The agenda of the Department is consolidated under the following themes:

- Exploring relationships between rural landscapes and livelihood.
- Landscape planning approach to nature and rural heritage conservation.
- Biodiversity conservation and sustainable use of native flora.
- Water conservation, climate change and their impact on urban and rural landscapes.

The Department is active in offering services to the community and professional consultancies in its areas of expertise.

Major Research Facilities

In addition to university resources, core facilities and school equipment, the LDEM Department benefits from the following facilities and equipments:

- Classrooms and Studios.
- Computer labs equipped with GIS lab and AutoCAD programs.
- A Mediterranean green corner which includes open spaces and greenhouses for the propagation and production of native and ecologically adapted landscape plants.
- A rich campus vegetation with more than 100 landscape tree and shrub species.
- A campus in the Bekaa that includes classrooms, studio, shop, open spaces for hands-on applications and a native landscape tree and shrub nursery.
- Equipment to measure water quality, soil physical properties and plant tissue analysis.
- Facilities such as tissue culture and seed bank.
A Pioneer in Nutrition, Food Science, and Dietetics

Overview

The Nutrition and Food Sciences (NFSC) Department is a leader in nutritional research and education in Lebanon and the region. It fosters a multidisciplinary approach to basic, clinical, and translational research with an emphasis on food consumption practices, nutritional assessment, food safety, quality of traditional foods, diet-related non-communicable diseases, and associated genetic traits underlying nutrition and obesity-related health problems. The Department has a distinguished and accomplished history in the area of nutrition that began in conjunction with the establishment of FAFS.

From its early days, in the 1960s, the NFSC Department had focused on enhancing social well being and health by addressing nutritional problems within communities. The Department also sponsors a dietetic internship at the internationally accredited AUB Medical Center. In 2007, the World Health Organization (WHO) formally recognized this excellence and designated NFSC as a collaborating center for research, training, and outreach in nutrition and food science. In 2009, the Department housed the first Associated Research Unit for Under-nutrition and Obesity in Lebanon under the support of the Lebanese National Council for Scientific Research (LNCSR).

The Department has hosted numerous internationally renowned scientists as visiting professors and lecturers. It has also established cooperation with international universities from France and Britain where a sizeable number of PhD candidates have partially conducted their research at AUB and with NFSC faculty members serving on their supervisory committees.

Academic Programs

At the undergraduate level, NFSC awards three BS degrees. A degree in Nutrition and Dietetics, and a new Coordinated Program in Nutrition and Dietetics (CP) which combines the didactic three-year Nutrition and Dietetics Program with an additional year of supervised practice. Courses are offered on topics such as human nutrition, therapeutic nutrition, community nutrition, and nutritional assessment. The Department also awards a BS in Food Science and Management. Courses are offered on topics such as food chemistry and analysis, food microbiology, food processing, food quality and service management, and food engineering.

The Department is currently seeking accreditation of its CP by the Commission on Accreditation for Dietetics Education (CADE) of the American Dietetic Association (ADA). The CP provides students who complete it with the academic and supervised practice requirements established by CADE.

Furthermore, the Department is home to graduate programs in nutrition and food technology, research and extension.
Research Interests

- Community nutrition and nutrition epidemiology
  » Poverty and food security in Palestinian refugees in Lebanon.
  » Household food security and nutritional status of Bedouin populations.
  » Investigation of the role of various dietary factors in the etiology of chronic diseases.
  » Assessment of dietary patterns as a new method to evaluate diet-disease association.
  » Assessment of prevalence and determinants of use of complementary and alternative medicine.
- Therapeutic and human nutrition
  » Pediatric obesity: prevalence, determinants and association with cardio-metabolic risk factors.
  » Body composition assessment in children and adolescents.
  » Assessment and characterization of food consumption patterns.
  » Hepatic metabolism and food intake control.
  » Hormonal regulation of appetite.
  » Micronutrients in health and disease.
- Food quality
  » Sensory characterization of local food products.
  » Examination of the variables of influence on food acceptability and intake.
  » Formulation of bread-based functional foods (minerals and trace metals fortification) Packaging of traditional and local foods.
  » Consumer behavior.
  » Recycling of food processing by-products for the production of biogas/biodiesel.
  » Powder characterization and the effects of various processing operations on powder quality.
- Food safety and food microbiology
  » Detection and prevention of food borne pathogens in dairy foods, meats, poultry, and vegetables.
  » Determination of preservation techniques against major pathogens in traditional foods (dairy, pastries, and meat).
  » Identification and prevention of toxic residues in food (pathogenic toxins, aflatoxins, pesticides, antibiotics).
  » Shelf life extension of local and regional food products.

Major Research Facilities
The NFSC department provides several laboratories for teaching the various components of both nutrition and food science.

- **Food Analysis Laboratory:** Students learn the basics of food analysis, such as proximate analysis (determination of protein, fiber, fat, moisture and ash) required for labeling purposes, chromatography, minerals’ quantification (calcium and phosphorus), carbohydrates, and reactions of fats and oils. They are exposed to equipment that aids in the determination of the component in question.
- **Research Laboratory:** The laboratory houses sophisticated equipment such as HPLC, gas chromatography, UV-VIS spectrophotometer, dietary fiber determination unit, Farinograph, Mixograph, Texture Analyzer, Parr calorimeter, and bomb calorimeter.
- **Graduate Students’ Research Laboratories:** Graduate students conduct in these laboratories studies on both rats and human subjects, effects of diets on various body components, formulations of new foods and ways to improve existing ones and many other areas of both food technology and nutrition.
- **Nutrition Research Laboratory:** is a laboratory equipped with a deep freezer, refrigerator, centrifuge and vortex mixers. Research assistants and graduate students work in this laboratory on projects that require blood analysis/treatment of study subjects. They carry out studies on both rats and human subjects, and handle biological samples.
- **Food Microbiology Laboratory:** The laboratory is assigned specifically for the Food Microbiology work. It is essential to be able to carry such activities safely and credibly and without it, none can be performed.
- **Human Nutrition Laboratory:** This laboratory aids in nutrition analysis. It houses a metabolimeter and treadmill for metabolic studies. Body composition measurement
equipment is also available, such as Dual Energy X-ray Absorptiometry (DEXA) and resting energy expenditure (REE).

- **Anthropometric Laboratory**: Anthropometric measurements (height, weight, body fat, waist circumference) are consistently measured in the department for learning purposes and research. In addition, students are introduced to the Nutritionist IV program and the food exchange system. The laboratory is equipped with scales, body fat and height measuring devices which are essential components of nutritional assessment. This laboratory is also used to teach food exchanges and portion sizes.

- **Sensory Evaluation Laboratory**: Students are exposed to sensory analysis, how it is performed and its required elements for reducing variability. Sensory analysis is used to enhance market products and investigate consumer acceptability and ingredient/processing change effects on foods through sensory studies performed by trained panelists. This laboratory is also used as an experimental food preparation area.

- **Animal Unit**: The NFSC Department has currently two rooms available at the Animal Care Unit, Diana Tamari Sabbagh Building (Medical School).

- **Pilot Plant**: Students are introduced to the food industry through their own miniature pilot plant. It is a food processing laboratory where students learn how to can, preserve, and prepare various products seen in the food market, such as canned fruits and vegetables, jams, powdered milk, and ketchup.

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**Extension and Development**

- **Wild Edible Plants**: Promoting dietary diversity in Lebanon, to increase dietary diversity for the rural and urban poor. Supported by IDRC.

- **The Lebanese Association for Nutrition and Food Sciences (LANFS)**: was established by NFSC faculty and student members. It is a non-governmental, non-profit organization that counts more than 450 dietitians working in Lebanon and the Middle East. It is a valued and credible reference for scientifically based nutrition and food science information in Lebanon with a primary goal to promote good health and disease prevention. Adhering body of the International Union of Nutritional Sciences (IUNS).

- **Qatrah Beverage Product for the year 2010**: The Arab Beverage Association in collaboration with the Department of Nutrition and Food Sciences at the American University of Beirut launched the Qatrah Beverage Product Innovation Competition for non-alcoholic beverages in the Arab World for 2010. The purpose of the competition was to encourage professional and creative thinking, to enhance teamwork and cooperation among regional companies, and to improve recognition and international exposure for Arab/regional companies. Competition categories included: best of each of bottled water, dairy drink, carbonated soft drink, juice and hot beverage.

- **The Lebanese Association for Food Safety (LAFS)**: was established at the end of 2010 by the efforts of NFSC faculty and student members. The mission of this new association is to educate, inform and empower Lebanese consumers about food safety issues, to protect them against the dangers of unsafe food, and to raise the safety standards of the food industry and the food supply chain in Lebanon to internationally acceptable levels. Members can enjoy many benefits that include internship opportunities in multinational companies, employment services, professional training, seminars and workshops.
The Environment and Sustainable Development Unit

The Environment and Sustainable Development Unit (ESDU) is a regional interdisciplinary research center that provides training services and consultancies for the MENA region. Since its establishment in 2001, it has undertaken a number of large-scale services and development research contracts. Working with national and regional organizations and interested donors, ESDU promotes sustainable rural livelihoods in dry lands. In 2006, ESDU was designated by the Resource Center on Urban Agriculture and Food Security (RUAF) as its 7th regional center specializing in urban agriculture in the MENA region.

Major Projects

• Communication for Development (ComDev) to foster local ownership in development processes through building capacities in effective communication practices in the Near East region. Supported by FAO.
• Outcome Mapping (OM) to mainstream evaluation theory and practice in the MENA region by using OM as an entry point. Supported by IDRC.
• From Seed to Table (FStT) to facilitate the development of sustainable urban farming systems in Amman and Sana’a through the use of a value chain approach. The project also contributes to urban poverty alleviation and enhanced urban food security, social inclusion and empowerment of urban disadvantaged groups in both cities. Supported by RUAF.

The Agricultural Research and Education Center

The Agricultural Research and Education Center (AREC) is a multi-functional and interdisciplinary center devoted to teaching, research, and rural development. Established in 1953 as an extension of the AUB campus, AREC serves FAFS faculty members, students, and other AUB faculties interested in food, environment and sustainable rural livelihoods. The Center enables FAFS students in agriculture, animal science and landscape design to engage in experiential and service learning and work with rural neighboring communities on a wide range of practical farming, crop production, livestock and poultry, and landscape in a variety of environments. AREC is managed according to environmental sustainability principles and is used extensively for externally funded research projects.

Major Facilities

• Research plots for rain fed and irrigated crops.
• Seed bank and tissue culture lab.
• Controlled environment greenhouse.
• Weather station.
• Biogas production and composting plant.
• Poultry and dairy research and processing facilities.
• Up-to-date machinery and agricultural implements.
Strategic Planning at FAFS

FAFS plans to continue to seek opportunities to:

- Build international strategic partnerships with local, regional and international NGOs, academic institutions and governmental entities.
- Collaborate on faculty training and exchanges to maintain quality standards in academia and secure accreditation.
- Pursue research and technology development projects to enhance the lives of peoples in the MENA region and the world.
- Disseminate information to face climate change, malnutrition and unstable food security.
- Organize conferences and workshops on sustainable development to elevate awareness, and spread education through experiential learning and hands on training.
- Pursue the excellence and entrepreneurship commitment of FAFS, endorsing the “intellectual entrepreneurs” model.
- Establish centers of excellence for human wellbeing.
- Offer PhD programs in the different disciplines at FAFS and seek accreditation for the on-going degrees from international accrediting bodies.

FAFS continues to play an active role in the community – training dedicated and highly motivated individuals eager to meet the needs of the region for human capital in agriculture, nutrition, and natural resources management.
For more information about FAFS, our academic programs, our facilities, current research initiatives, and outreach projects, please contact:

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