



Luiz de Queiroz College of Agriculture

Course Offerings

Degree codes:

- 11010 - Agriculture
- 11020 - Forestry
- 11040 - Licentiate Degree in Agriculture
- 11050 - Economics
- 11061 - Food Science
- 11070 - Biological Sciences (104 = Licentiate Degree; 4 = Bachelor Degree)
- 11080 - Environmental Management
- 11090 - Management

ID	Course Name	Professor	Course Content Summary	Total Course Hours	Semester	Degree code
LAN0112	Food Toxinfections Epidemiology	Severino Matias de Alencar	Food health and disease process determination. Health concept. Epidemiological methods. Health statistical indexes and coefficients. Descriptive and analytical epidemiology. Casual hypothesis formation. Research drawing and data collecting in food toxic infection outbreaks. Digestive tract anatomy and physiology. Infection and virulence principles; Food as a transmitter of diseases, food transmissible disease epidemiology and preservation measures; Epidemiological surveillance, food sample planning studies; Hygiene and sanity principles, detergent and harming substances; Laboratory practices of preparing harming solutions, use of detergents and techniques of microbiological evaluation by suabe use.	90	1 st	11061 11070 11010
LAN0127	Introduction to Food Science	Sandra Helena da Cruz	General view of Food Science in the agri-food chain; Food Science: area, course and job market; ESALQ Departments: infrastructure, areas and sectors; Activities for Teaching, Research and Extension Services; Areas and workplaces for Bachelor of Food Science; Food problems in Brazil.	60	1 st	11061



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LAN0132	Scientific Information		1. Search tools of scientific articles on bibliographic databasis. 2. Selection criteria of scientific texts. 3. Guided reading and critical analysis of texts. 4. References and technical Standards. 5. Writing summary.	60	2 nd	11061
LAN0152	Research and Development of Food Products I	Thaís Maria Ferreira de Souza Vieira	Strategies for product development and innovation in the food science field; Product development project design; Marketing: brand and logo definitions; Production capacity; Additives and ingredients; Formulation; Processing; Nutrient interactions and bioavailability; Food fortification; Packaging; Selection of equipment and utensils; Treatment and reuse of waste and wastewater; Physical arrangement study (industrial layout); Labelling and product registration; Financial analysis; Additives and ingredients fair excursions; Technical visits.	120	2 nd	11061
LAN0155	Oils, Fats, Oilseeds and By-products	Severino Matias de Alencar	Basic chemistry of oils and fats; Properties; Oxidative stability; Extraction processes; Modification and refining; Emulsions; Cocoa and chocolate; Protein value products.	90	2 nd	11061 11010



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LAN0166	Sensory Analysis	Marta Helena Fillet Spoto	Definition of sensory analysis; General notions of quality, quality attribute classification, application types; Definition of sensory panel: selection, training; Training evaluation; Panel maintenance; Laboratory samples; Sensory methods; Threshold tests; Difference tests; Analytical tests; Preference and acceptability tests; Statistical methods: variance analysis; Slow Food Internazionale – Sensory Education; Sensory education for children and adults methodology.	90	1 st	11061
LAN0188	Molecular Gastronomy	Marilia Oetterer	Concept of Molecular Gastronomy. Flavors. Molecular Gastronomy in the classic techniques – Meat; Fish; Sauces; Deserts. Molecular Gastronomy and beverages tasting. Techniques of cooking and reaction – Rice, bean, vegetables. The physical chemistry in creating new dishes and unusual combinations.	60	1 st	11061 11010
LAN0200	Food Biochemistry	Sandra Helena da Cruz	Enzymes, pigments, edulcoratings and hydrocolloids; Protein functional properties.	60	1 st	11061
LAN0216	Physical Chemistry and its Application to Foods	Pedro Esteves Duarte Augusto	Introduction; Fundamentals; Ideal and Real Gas Laws; Thermodynamics: principles, laws, and applications; Phase equilibrium; Properties of mixtures; Chemical equilibrium; Solution and dispersion transport properties.	90	1 st	11061



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LAN0250	Research and Development of Food Products II	Thaís Maria Ferreira de Souza Vieira	Product development and presentation; Production project development and presentation.	120	1 st	11061
LAN0310	Nutritional Biochemistry	Severino Matias de Alencar	Carbohydrate metabolism; Lipid metabolism; Metabolic regulation; Amino acid biosynthesis; Catabolism of the Carbon Skeletons; Regulation and Metabolic Integration; Vitamins and minerals and their biochemical; Metabolic disorders: hypoglycemia, osteoporosis, diabetes, phenylketonuria, atherosclerosis, lactose intolerance, galactosemy; Fasting and absorptive period.	60	2 nd	11061
LAN0318	Meat and Eggs	Carmen Josefina Contreras Castillo	Meat structure and composition; Muscle conversion into meat; Bovine, swine and poultry slaughter steps; Quality evaluation; Main functional property study; Bovine and swine meat products; Poultry meat origin products; Eggs: structure, composition, quality; Egg processed products.	90	1 st	11061 11010



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LAN0400	Public Health Nutrition	Marina Vieira da Silva	Concept of epidemiology and nutritional epidemiology; Determination of the health-illness process; Social history of the illness; Indexes and coefficients used in health statistics; Descriptive epidemiology; Analytical epidemiology; Formation of casual hypothesis; Design of researches and techniques for data collection; Nutritional Epidemiology; Ethics and research with human beings; Guidelines for the dietary planning; Nutritional diet content; Food sources: energy and nutrients; Feeding in different stages of life; Physical activities and feeding; Necessities and recommendations of energy and nutrients for distinct stages of life; National and international tables of energy and nutrient recommendation; Use and limitations of the food composition tables; Evaluation of the nutritional state and consumption.	60	2 nd	11061
LAN0405	Food Analysis	Solange Guidolin Canniatti Brazaca	To enable the students to make chemical analyzes of centesimal composition and other substances present in food and to guide about the choices of methodology of chemical analysis. At the end of the discipline the students may be able to choose the best method of analysis; be able to make sampling, have knowledge about the process of making analyzes; to know and access different tables of composition and articles that contain the composition of food; have notions of chemical waste disposal and basic procedures of analyzes.	90	1 st	11061



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LAN0415	Functional Foods	Jocelem Mastrodi Salgado	1. Talk Program (Purpose of Discipline); Division of the working groups; Definition and distribution of the themes of the final work, talk about work presentation; Definition for care at the time of monitoring, 2. Nutritional Trends in Brazil and worldwide. Brazilian legislation. Major functional components studied. Biomarkers. 3rd. Lecture on legislation 4th. Soy and its functional components. 5th. Fatty acids: W3, W6 and W9. 6th. EVALUATION. 7th. Technical trip to a factory of Functional Foods. Eight. Functional oils and fats of vegetable origin: avocado, nuts, olive oil and flaxseed. 9th. Functional carotenoids: lycopene, lutein and zeaxanthin. 10. Citrus fruits and red and its functional constituents. 11. Cruciferous vegetables and its functional components. 12. EVALUATION. 13. Plant sterols and stanols. 14. Allium family and its bioactive components. 15. Probiotics and Prebiotics and Fiber. 16. Delivery and Evaluation of Functional Foods primer	60	1 st	11061
LAN0451	Sugar and Alcoholic Beverages	Sandra Helena da Cruz	Industrial production flowcharts of sugar, alcohol and its products, yeasted and yeasted-distilled beverages; Sugar cane technological aspects and industrial processing of sugar and alcohol production; Non-enzymatic darkening reactions; Yeasted and yeasted-distilled beverage processing steps; Controlling notions of industrial processing and quality control; Products, subproducts and effluents.	90	2 nd	11061



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Pppp'	Food Security and Nutritional Safety	Marina Vieira da Silva	1) Concept and limitations of food security and nutritional safety; 2) Strategies for promoting food security and nutritional safety; 3) Changes in patterns of growth and food intake (nutrition transition); 4) Nutritional status; 5) Impact on health / nutritional condition, economic and social development of food quality control; 6) Policies for food and nutritional security; 7) Food and nutrition programs evaluation; 8) The role of national and international agencies; 9) Models of consumers' preferences and food security.	60	2 nd	11061
LAN0615	Supervised Internship in Agri-food Industry, Food and Nutrition I	Sandra Helena da Cruz Silene Bruder Silveira Sarmiento	The Supervised Internship period will give the student the opportunity of improving the theoretical and practical knowledge related to the area of agro-industry of food and derivatives and of food and nutritional safety; The activities can be developed both at ESALQ, public and private institutions, always with the monitoring and guidance of at least one professor.	105	1 st /2 nd	11061 11010
LAN0635	Supervised Internship in Agri-food Industry, Food and Nutrition II	Sandra Helena da Cruz Silene Bruder Silveira Sarmiento	The Supervised Internship period will give the student the opportunity of improving the theoretical and practical knowledge related to the area of agro-industry of food and derivatives and of food and nutritional safety; The activities can be developed both at ESALQ, public and private institutions, always with the monitoring and guidance of at least one professor.	105	1 st	11061 11010



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LAN0653	Sugar Technology	Claudio Lima de Aguiar	Introduction to sugar technology; Preliminary operations of manufacturing; The juice extracted by crushing and dissemination; Purification of the broth; Concentration of the broth; Crystallization of sugar; Final operations; Productions of steam and power generation; Quality control; Visits to sugar mills.	60	2 nd	11061 11010
LAN0685	Ethanol Technology	Antonio Sampaio Baptista	Ethanol production flowcharts; Agro-industrial raw materials; Treatment of broth; Must; Microorganisms; Alcoholic fermentation; Industrial processes; Distillation, rectification and dehydration; General aspects of production and quality control; Subproducts, residues and effluents.	60	1 st	11010
LAN0697	Sugar and Ethanol	Antonio Sampaio Baptista Claudio Lima de Aguiar	Laboratory organization; Raw material maturation control; Sugar cane systematic payment; Extraction control; Sugar cane mill control; Clarification control; Concentration control; Sugar analyses; Fermentation control; Distillation control; Alcohol analyses; Control bulletins; Final evaluation.	90	2 nd	11061 11010



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LAN1444	Quality and Processing of Animal Source Foods	Thaís Maria Ferreira de Souza Vieira	Cold chain in the conservation of food of animal origin; Principles of food preservation by heat-pasteurization; Preservation of foods by heat-sterilization; Fish: production, consumption, capture and fish culture; Post-capture, decay and freshness; Distribution and cold storage and processing; Meat: Pre-slaughter and slaughter of cattle; Importance, cuts, quality and processing; Milk: Microbiology of raw milk; Milking, milk quality and classification; Initial operations at the plant and thermal treatment.	60	1 st	11010
LAN1458	Sugar and Ethanol	Antônio Sampaio Batista Claudio Lima de Aguiar Sandra Helena da Cruz	Industrial fluxograms of sugar and alcohol production; ; Technological aspects of sugar cane and the industrial processes for the production of sugar and alcohol; Overview of industrial processes and quality control; Subproducts and effluents.	60	2 nd	11010
LAN1616	Beverage Technology	André Ricardo Alcarde	Raw materials for beverage production; Juice preparation; Industrial yeasts; Alcoholic fermentation; Distillation; Maturation (aging); Final operations in the beverage production; Beverage production practical experiments; Quality control laboratory analyses.	90	1 st	11010
LAN1626	Chemical Quality of Beverages	André Ricardo Alcarde	Chemical analysis of raw materials for the production of beverages in grape, fermented and distilled beverages and drinks aging; Practical experiments and laboratory testing for chemical quality control of beverages.	90	2 nd	11010



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LAN1690	Food Microbiology	Solange Guidolin Canniatti Brazaca	Food deteriorating and pathogenic microorganisms. Sampling for microbiological analysis. Use of cold and heat in food conservation. Bacterial dissemination in food industry. Food as microbial ecosystem.	75	1 st	11061
LAN1700	Food Hygiene and Legislation	Claudio Lima Aguiar Gilma Lucazechi Sturion	1. Sanitary quality in the food production chain. 2. Legislation and sanitary inspection of food. 3. Program requisites for food safety. 4. System Hazard Analysis and Critical Control Points (HACCP). 5. Consultancy and advice on quality tools and legislation.	90	2 nd	11061
LAN1880	Quality Assurance in the Agri-food System	Sandra Helena da Cruz	1. Risk Analysis. 2. Achievements and perspectives for food security in industrial and retail áreas. 3. Qualification of suppliers practice. 4. Planning training program for Human Resources. 5. System of Hazard Analysis and Critical Control Points application.	90	1 st	11061
LAN2444	Post-harvest Handling and Processing of Vegetables	Thaís Maria Ferreira de Souza Vieira	Agri-food industry improvements and tendencies; Legislation; Post-harvest and storage of fruits, vegetables, grains, roots and tubers; Processing of fruits, vegetables, grains, roots and tubers.	60	1 st	11010
LAN2670	Starchy Products	Silene Bruder Silveira Sarmiento	Processing of cereals (wheat, corn, rice and others) and starchy roots and tubers (cassava, potato and others); Chemical and physical principles involved in these processing; Properties, functionalities and applications of starch.	90	2 nd	11061 11010



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LAN2680	Fruit and Vegetable Technology	Marta Helena Fillet Spoto	Biochemistry and post-harvest physiology of fruits and vegetables; post-harvest, packaging and storage system, minimal processing, freezing, thermal treatment, concentration, osmosis, drying and dehydration, preservatives, enzymes in the processing.	90	2 nd	11061 11010
LAN2690	Dairy Products	Clarice Gebera Muraro Serrate Cordeiro Tenório Jocelem Mastrodi Salgado	Milk chemistry: bovine, main domestic species and human mil.; Milk microbiology: lactic, deteriorating and pathogenic bacteria. Types of milk and legislation. Hygienic milking; Industrialization: pasteurization and long life (UHT) milk. Technology of milk products: cheese, curd, milk cream, butter, yogurt, fermented milk, powdered and condensed milk. Infant formula.	90	2 nd	11061
LAN2662	Unit Operations in Food Processing II	Pedro Esteves Duarte Augusto	Stability and methods of food preservation: reduction of water activity and barrier technology; Mass balance; Mass transfer.	60	1 st	11061 11010
LAN0690	Microbiology and Food Spoilage	Claudio Rosa Gallo	Introduction; General methods of food preservation; Microorganisms relevant to food spoilage; Food poisoning; Microbiology and spoilage: water, meat, fish, sugar, milk, cereals, fruits, vegetables, eggs, poultry and canned foods; Notions of surface water treatment.	75	2 nd	11061 11010
LAN2695	Seafood and Freshwater Fish Technology	Marília Gomes Oetterer Thaís Maria Ferreira de Souza Vieira	Fish post mortem alterations; Hygienic quality monitoring; Minimum processing; Traditional processing; Implications of the commercialization and industrialization; The fish-food in practical classes.	90	1 st	11061 11010



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LAN2740	Statistical Quality Control in the Agri-Food Industry	Thais Maria Ferreira de Souza Vieira	Experimental planning and optimization of process as tools for quality control; Statistic control of process: principles, control graphics by variables, control graphics by attributes. Methods for analysis of the process capability. Six-sigma process. Quality inspection. Sampling plans. Product shelf life determination. Technical visits.	90	2 nd	11061 11010
LAN2661	Unit Operations in Food Processing I	Pedro Esteves Duarte Augusto	Stability and methods of food preservation: cooling, freezing, thermal processes; Heat transfer and heat exchangers; Thermal processing: fundamentals of thermal bacteriology; Principles of thermodynamics and cooling; Food rheology and fluid dynamics.	90	2 nd	11061 11010
LAN3000	Final Report in Food Science	Sandra Helena da Cruz	Development of academic activity within one of the following categories: - Monograph; - Original work research; - Projects developed in companies, educational or research institutions.	180	2 nd	11061