

## DISCIPLINES AND SYLLABUS

To complete the course, the student must complete 28 credits in subjects, among these, four credits in compulsory subjects (Dissertation I, II, III and IV). In addition, it should do experiments that result in data and used to write the dissertation, which should be defended before the defense, within two years.

<b>Disciplines</b>	<b>Number of credits and workload</b>	<b>Syllabus</b>
Instrumental analysis	3/45 h	Application of chemical, physical and instrumental analytical techniques. Advanced methods in food analysis. Validation of analytical methods.
Sensorial analysis of foods	3/45 h	Sensory methods applied to the development of new products and quality control in the food industry: descriptive, discriminative and affective methods. Home and central location testing. Sensory panel formation. Statistical methods applied to sensory analysis.
Food bioprocesses	3/45 h	Enzymatic and microbial kinetics. Generic industrial fermentation process. Features of submerged and solid state bioprocesses and bioreactors. Food products and new ingredients obtained by bioprocesses.
Grain and Flour Science and Technology	3/45 h	Structure, chemical composition and nutritional value. Quality control. Grain Processing. Physical, chemical and rheological properties of flour. Raw materials, ingredients and additives used in bakery products. Advanced topics in grain and flour technology.
Dairy Science & Technology	3/45 h	Brazilian and world dairy market. Composition and physicochemical aspects of milk and its effect on dairy quality and processing. Dairy product processing: fluid milk, dairy drinks, fermented products. Pasteurized sour cream, butter and curd. Milk sweet. Evaporated milk, condensed milk and milk powder. Cheese and whey. Tendencies.
Meat Science and Technology	3/45 h	Influence of pre and post slaughter on meat quality. Transformation of muscle into meat. Installations for the industrialization of raw materials of animal origin. Industrialization of animal products. Meat industry by-products. New topics of interest in meat science and technology.
Food Microbiology	3/45 h	Incidence and types of microorganisms involved in contamination, spoilage and foodborne diseases. Microbiological quality control in food. New techniques for detecting microorganisms and their products in food. Virulence factors. Biofilms.
Food chemistry	3/45 h	Study of chemical transformations of food constituents. Physical structure, chemical properties and macro and micronutrient reactions of foods.
Experimental Design	3/45 h	Topics of experimental statistics. Analysis of variance. Complete and fractional factorial design. Response surface. Mixture designs. Use of computer softwares for statistical analysis.
Food Processing and Preservation	3/45 h	Conservation operations and food processing. Thermal and non-thermal processes: pasteurization, ultra-

		pasteurization, sterilization. Conservation by the cold. Ultra pressure Electric field. Irradiation. Combined conservation methods. Use of additives. Innovations and trends in food industry processes.
Separation Processes in the Food Industry	3/45 h	Processes for preparing raw material and purifying food products. Physical-mechanical separation processes. Continuous and stage processes of separation of liquids and gases, liquid vapor, liquid-liquid, liquid-solid. Supercritical fluid technology. Membrane separation processes.
Biochemical Processes	3/45 h	Biochemical processes in vegetables and meat products. Food processing enzymes and their use in the transformation of carbohydrates, proteins, lipids and acids in the food industry. Metabolic pathways of anabolism and catabolism in microorganisms.
Special Topics	3/45 h	Discipline in which the students are oriented within a specific research area and should provide the graduate student with specialized training, addressing topics not studied with along the regular course curriculum, looking for innovation and updating knowledge. Review or research paper are required as evaluation.
Teaching Internship I	2/30 h	Teaching-learning process and didactic-pegagogical techniques in higher education. Planning of teaching action. Assessment of academic performance.
Teaching Internship II	2/30 h	Development of teaching internship in the undergraduate classroom, under the supervision of professor of graduate program. The discipline must be performed by the students contemplated by any type of scholarship. The responsible professor acts as coordinator of the discipline.
Scientific methodology	1/15 h	Systemic approach applied to scientific research. Characteristics and elements of the Scientific Method. Research Classification and its Methods. Research Projects. Research Report. Report guidelines and structure. Oral presentation and electronic presentation. Scientific Article-Elaboration: Guidelines and Article Structure.
Seminars I	1/15 h	Preparation and presentation of the Dissertation Project (1. Introduction, 2. Justification, 3. Objectives, 4. Literature Review, 5. Material and Methods, 6. Schedule, 7. Budget, References). The responsible teacher acts as coordinator of the discipline, organizing the presentation boards of dissertation projects.
Seminars II	1/15 h	Partial Presentation of the Report of Dissertation (1. Introduction (includes justifications and objectives), 2. Development (Review of Literature, Material and Methods, Partial Results, Discussion of Results) Qualification Exam with emphasis on results. discipline, organizing the qualifying exams.
Dissertation I, II, III and I	1/15 h (cada disciplina)	Activities performed by students with the purpose of preparing the various steps for the implementation of the master's dissertation under the supervision of a supervising teacher. At the end of the orientation discipline II the student should defend the dissertation project in the Seminar II discipline. At the end of the discipline of orientations IV the student should perform the public

		defense of the dissertation. If not, the student may request extension of the deadline.
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