



## **PLAN OF STUDIES**

### **SECOND YEAR**

#### **ERS 201 Health and Well-Being**

This course gives the student the basic information necessary to improve his/her eating habits. The course also teaches the student the fundamental concepts that are integral for knowledge about physical conditioning, such as: strength, muscular and cardiovascular stamina, flexibility, the physical composition of the human body and how to apply these concepts to everyday life.

Two hours of class per week.

#### **EXP 200 Work Experience**

In the 2<sup>nd</sup> year, the Work Experience course is divided into six modules throughout the year with duration of seven weeks for each unit. Each week of classes consists of 11 hours of work, one of which takes place in a classroom setting.

This course is composed of six modules in rotation:

- EXP201 – Sustainable Agriculture
- EXP202 – Integrated Pest Management
- EXP203 – Integrated Livestock Systems
- EXP204 – Management of Natural Resources
- EXP205 – Agricultural Engineering
- EXP206 – Topography
- EXP207 – Waste Management

#### **EXP 201 Sustainable Agriculture Module**

In this module, the student performs exercises focusing on the integration of the use of living, non-living, energy-related, financial,

and intellectual resources to attain a level of activity that is both productive and environmentally sound.

The student works to produce natural components of agriculture (such as fertilizers) that contribute to sustainable agricultural production, which can be applied to forestry, animal production and crops production. Processes and activities include: management of organic byproducts of vegetable and fish production, production of natural fertilizers such as bokashi, and production of beneficial microorganisms to improve crop production substrates, as well as biological substances to control plant diseases.

### **EXP 202 Integrated Pest Management Module**

This module focuses on the area of protection of crops by integrating knowledge and farming methods to control weeds, plant diseases, insects, plagues, and other organisms that can cause crop losses. In this course, all safety norms concerning the application of pesticides must be adhered to including: actual application of pesticides, processes for dealing with empty containers and contaminated waters, and the appropriate use of protective clothing and application equipment.

The student evaluates real life situations and uses the conclusions to make recommendations as to the appropriate means for controlling above mentioned agricultural problems.

### **EXP 203 Integrated Livestock Systems Module**

This module focuses on the running of the day to day activities pertaining to livestock management in a sustainable manner. Areas of focus include management of cattle, pigs, birds and fish. The student also deals with daily maintenance activities of the farm and production unit, the preparation of animal feed, byproducts and garbage management, and wastewater treatment.

### **EXP 204 Management of Natural Resources Module**

The student works to attain knowledge about management of natural resources of the tropics, with emphasis on organic matter and water. The student works to describe how vegetable species can be used as

natural resources and describes limitations of natural forests, forest plantations, and agro ecosystems. He/she participates in the management of protected areas and ecotourism sites. He/She identifies superficial/surface sources of water and learns to measure water levels and volumes of flow with agricultural instruments. The student also works in establishing and maintaining forest plantations, "living fences", and agroforest systems. Proper use of recycled resources is also a component throughout the module.

### **EXP 205 Agricultural Engineering Module**

The student learns about good management practices of resources in an agribusiness in this module. He/she works in organization of functions of a shop/workshop and all services for the production unit.

The student prepares and operates agricultural equipment for mechanical work in the production units of the farm. The student works on simple building projects and does preventative and reconstructive maintenance of the infrastructure (metal and wood) of the unit.

### **EXP 206 Topography Module**

In this module, the student practices in both laboratory and field settings to develop skills in using topographical instruments and conducting topographical studies. He/she uses simple instruments to process, interpret, and utilize the geospatial information collected. He/she processes the information from the field and creates plans and reports according to the specific requirements of the business and user.

### **EXP 207 Waste Management Module**

This module presents to the student the theory behind and practice of proper management of wastes created by communities, farms, and agro industry.

### **EMP 201 – EMP 203 Entrepreneurial Projects**

During the 2<sup>nd</sup> Year, the student carries out the business ventures that were previously approved. In a manner similar to first year, he/she participates in a series of modules in which he/she develops the skills necessary to successfully conduct their projects. (For a general description, see Entrepreneurial Projects, First Year).

Two hours of class per week, plus discretionary hours required to carry out the projects.

### **Module 3: Feasibility Study and Defense**

This module continues in the sequence of undergoing the feasibility study of their project in which the student analyzes the different components of it and concludes the module with a final presentation (both oral and written) and defense of his/her project in front of a panel of evaluators made of up agribusiness people, intermediaries, students and professors.

### **Module 4: Accounting for an Agribusiness**

This course provides the student with the basic knowledge and tools to design and establish an accounting plan for an agribusiness. Design and create accounting entries which give information necessary to the decision-making process. The student learns to register economic transactions in different accounting books. He/she learns to analyze the following accounting reports: Balance Sheet and Income Statement. The student learns to create managerial reports with the information obtained from the accounting process.

### **Module 5: Administration of an Agribusiness**

This course emphasizes the rational management of resources within the agribusiness. Different administrative functions are analyzed within the business so as to be able to resolve problems and to look for opportunities in a context in which social and environmental considerations are prevalent.

Two hours of class per week.

### **MAT 201 General Statistics**

This course develops the necessary abilities to collect, analyze, and interpret information from the sample obtained. The student learns to differentiate between the population and the sample, and calculate sample estimators to make inferences about the population parameters. As well, the student runs  $t$  and "Achi-squared" tests, and statistical tests between dependent and independent variables.

Two hours of class and three hours of lab work per week.

### **CIE 201 Applied Genetics**

The student explains and applies the principles of improving the genetics of plants and animals in the humid tropics. He/she learns the role of molecular biology in agriculture and develops skills for the selection of cattle, hogs, and plants.

Two hours of class and four hours of laboratory work per week.

### **CIE 202 Inorganic Chemical Processes**

The student learns about the inorganic chemical processes important in nature, the environment, and particularly those related to agriculture. He/she learns to use and apply the concepts of solutions, and acid-base, equilibrium, and redox systems, in the analysis of processes relevant to agriculture that involve the macro- and micro-elements.

Two hours of class and three hours of laboratory work per week.

### **CIE 203 Organic Chemical and Biochemical Processes**

The student describes organic chemical and biochemical processes important in nature, the environment, and particularly those related to agriculture. He/she identifies and learns about hydrocarbons and organic halides, alcohols, phenols, esters, carbonyl compounds, amines, biomolecules, and enzymes.

Two hours of class and three hours of laboratory work per week.

### **ING 201 – ING 203 English**

The course continues for students at a beginner, intermediate or high-intermediate level of English. The student continues learning to communicate in English at a basic level, through the integration of four macro-skills: listening, reading, writing, and speaking.

Three hours of class per week and other activities as required.

### **CUL 201 Pest Control: Entomology**

The student determines and discusses the relationships between insect pests and their hosts and the environment. He/she learns to identify arthropods, pests of crops and domestic animals in the tropical area. He/she evaluates and search for the most adequate control techniques to implement in production, such as biological control, cultivation, genetics, physics, chemistry, and others.

Two hours of class and four hours of laboratory work per week.

### **CUL 202 Pest Control: Diseases**

The student gains the skills to use the principles and practices for the management of crop diseases as part of an integrated system in production agriculture. In addition, the student learns about and evaluates the concepts of diseases, considers causal agents and their behavior, the influence of environmental factors, and the behavior of plants. He/she poses rational measures and sustainable management for control that include economic and ethical considerations.

Two hours of class and four hours of laboratory work per week.

### **CUL 203 Pest Control: Weeds**

The student learns to differentiate the most important weed species in different systems, as well as the characteristics of the weed population. He/she describes the relationship between weeds and other pests, analyzes how pest control practices affect the environment, and compares the properties of the different methods of pest control and management.

Two hours of class and four hours of laboratory work per week.

### **PRA 201 Animal Reproduction and Lactation**

The student analyzes, in a comparative manner, the anatomy, embryology, and physiology of the reproductive and mammary systems of domestic species that are used in the humid tropics. He/she discusses those aspects that, in a direct or indirect way, affect the reproductive efficiency and milk production in productive animal species of the humid tropics, as well as acquires the skills necessary to implement artificial insemination programs for cattle.

Two hours of class and four hours of laboratory work per week.

### **HUM 201 Introduction to Latin-American Reality**

This course offers the student, through study and analysis of literature, film, and other contemporary artistic forms, the opportunity to expand his/her knowledge about, understanding of, and appreciation for the problems that affect Latin America. The course emphasizes the critical study of work of widely-recognized authors and film directors as a means of reflection on the current world.

Two hours of class per week.

### **HUM 202 Ethics and Critical Thinking**

This course offers the student the opportunity to examine the questions about the meaning of "good" and justice in the moral content of our action in present-day society. The analysis is done through the study of the work of both classic and modern thinkers.

Two hours of class per week.