

# General Biology

**Calendar:** 2nd semester

**Contact Hours:** T:22,5;TP:22,5; O:15,0

## **Intended learning outcomes of the curricular unit:**

At the end of the course is intended that students have skill to: a) Understand the principles of classification and diversity of living organisms. b) Give details of structural and functional aspects of cellular biology. c) Identify the basic principles of metabolism in plant and in animal cells. d) Understand the fundamentals of the control of cell division e) Understand the fundamentals of heredity f) Acquire abilities of optical microscopy techniques and cytochemistry

## **Syllabus:**

Theoretical Components: 1. Theory and Cellular concept of Life, 2. Organization of eukaryotic cells; 3. Specific organism; 4. Plastids and Functions; 5. Endomembranar system:morphofunctional relations between: endoplasmic reticulum, Golgi complex and lysosomes; 6. The cytoskeleton; 7. Nucleus, Cell cycle control and Apoptosis; 8. Specialized Human cells: muscle cells, neurons and gametes.

Laboratory components: 1.Microscopic observations; 1.1.Prokaryotic and eukaryotic cells, Plastids: Chloroplasts and Reserve plastids, Brownians movements; 1.2. Membranes transports; 1.3. Cell wall in plant cells and different staining techniques; 1.4. Chromosomes and Mitosis; 2. Extraction, separation and quantification of photosynthetic pigments; 3. Cell cultures in vitro.

## **Demonstration of the syllabus coherence with the curricular unit's intended learning outcomes.**

The syllabus are coherent with the outcomes expect for the course, since includes all the themes essential for a deep knowledge on general biology. The work with the students is focused on essential notions of biodiversity and of essential process of the living cells, as reproduction and cell death and cellular specialization. The syllabus includes general contents of biology, covering essential biological domains appropriated to the outcomes on general biology expected.

## **Teaching methodologies (including evaluation):**

In the theoretical classes a participatory-expository teaching methodology will be employed, as well as the debate within the group of students. In the laboratory classes students will be asked to perform an experiment of which they will have to write a report. Those classes will also have a period for discussion of the experiment with the students at the end. Each component, theoretical and practical, accounts for 50% of the total classification. Laboratory assessment includes reports from each experience, and for the theoretical part students will perform two moments of evaluation, one individual and another in group for an oral presentation

## **Demonstration of the teaching methodologies coherence with the curricular unit's intended learning outcomes.**

The expository-participatory methodology, adopted in the theoretical classes is well adapted to the presentation of the several themes discussed during this curricular unit. Besides that, it allows for the students to contribute to the choice of the discussed topics. Laboratory classes allow for a hands-on approach to the study of general biology.

The evaluation methods demand that the students use the knowledge acquired during this curricular unit in an integrated perspective. The oral presentations enables the upgrade of skills for teamwork and for oral presentation, and demand for an additional investigation about a particular area, as defined for the learning outcomes.