

Introduction to Biotechnology

Calendar: 1st semester

Contact Hours: T: 22,5; PL: 22,5; O: 15,0

Intended learning outcomes of the curricular unit:

The main aim of this curricular unit is to understand that biotechnology is a multidisciplinary area that uses living organisms and bio-processes in engineering, technology, medicine and other scientific areas that require bio-products. Biotechnology also uses these products for manufacture purposes. It is also important to know and understand the evolution of biotechnology throughout time, as well as its ramification in the several areas. Compare and differentiate between chemical and biological processes and know some of its most important products in biotechnology are also important aims of this subject.

In addition, all this technological progress over the years raises some important ethical questions, in which there is no moral consensus. In the end of the semester, the student must be able to understand the importance of bioethics in biotechnology and must be able to have critical and justified ideas regarding: abortion, cloning procedures, organ transplantation, euthanasia.

Syllabus:

1-Definition of biotechnology. 2- Areas in biotechnology. 3-Biotechnology products. 4-Historical aspects. 5-Comparison of biological and chemical processes. 6- Careers in Biotechnology. 7-Bioethics:Ethical questions raised by the development of genetics and biotechnology. Genetic modified organisms (GMO) and biotechnological Agriculture. Ethics and biotechnology industries. Ethical questions associated to genetics and biotechnology in different cultures and religions.

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

Introduction to biotechnology is an introductory subject to the basic concepts of biotechnology. The fact that biotechnology as been a fast growing science and that it covers a great variety of life areas, such as medicine and agriculture, it is important to have a critical posture for its development and understand and/or narrow the limits for its action.

Bioethics is important in this context, since is necessary to dialogue, with a multidisciplinary attitude, with the following aim: the technological and biomedical progress should serve the human life and its social convenience and not against it.

Teaching methodologies (including evaluation):

Lecture presentation in PowerPoint support. In the case of bioethics, alongside the lectures, case study debates should be held (10%); watch a movie or documentary related with bioethics; group presentation of a scientific article related with bioethics (15%). In the end of the semester a final exam will be held, accounting for 75% of the final grade.

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

The evaluation methodology must be diagnostic and continued. The evaluation should be a moment more in the process of teaching-learning and should develop the ability to search for information and a critical thinking. Within this perspective, the bioethics content of this subject will be evaluated, not only by a final exam (as the case of the first part of the subject) but also through group work , in particular, analysis and presentation of scientific articles.

Evaluation will also involve assiduity, dedication, interest, critical judgment and ability for text interpretation.