



INIS2360 Communications in biological systems

[45h] 4 credits

Teacher(s): Jean Delbeke, Claude Remacle, Philippe van den Bosch Sanchez de Aguilar
Language: French
Level: Second cycle

Aims

The main purpose of this class is to propose to students interested in biomedical engineering a general perspective about the communications between living beings and their environments. Particularly, this class should allow students:

- to understand the mechanisms of interaction with the external environment, as managed by the central nervous system, and concerning as well sensations (vision, audition, tact, etc.) as motor actions (gestures, language, etc.);
- to understand the mechanisms of interaction with the internal environment, as managed by the autonomous nervous system and the hormonal system, and concerning afferences as well as efferences;
- to understand the mechanisms of coordination of these interactions with the external and internal environments at the different levels of cells, organs, and biological systems.

Main themes

Information theory perspective in biological communications; nervous sensors; nervous effectors; neural regulation; synaptic transmission; hormonal control; perception; sensor-effector complementarity; sensory-motor coordination; language; person-machine interactions.