BIO1231 Complements of animal biology

[75h+70h exercises] 12 credits

This course is taught in the 1st and 2nd semester

Teacher(s):	Thierry Hance, Bernard Knoops, Claude Remacle (coord.), Philippe van den Bosch Sanchez de Aguilar, Hans Van Dyck
Language:	French
Level:	First cycle

Aims

To establish a general scheme of the object, starting from observation. If the scheme reveals to be not applicable, to conceive new observations and hypotheses. To treat the information, structure and synthesise it, and to criticise this approach. To encounter the biological diversity of Invertebrates in an evolutionary perspective and to define the acquisitions of the different evolutionary steps to the process of life expression. To apprehend the specific modalities of nervous functioning in relation to the general activities of the organism.

Main themes

Module A - Biology of Invertebrates (7.5 ECTS) - The concept of biodiversity will be approached by examining the major organisation plans during the evolution of Invertebrates. The BIR students will follow 3 ECTS. On the same basis, the BIOL students (7.5 ECTS) will receive a larger vision by analysing the evolutionary radiation within these plans. The notions included in this first part will be generalised in a global approach of the evolution mechanisms and the principles of systematics.
Module B - Comparative biology of Vertebrates (3 ECTS) - The elements of comparative anatomy of Vertebrates are the logical sequence after the part devoted to Invertabrates. The influence of the biosphere on the general evolution of Vertebrates will be studied. Then, the structure-function relationship will be examined in the different classes of existing vertebrates. The evolutionary adaptation will be shown in the organ systems. A part of the course will deal with hominisation. For the BIOL students (3 ECTS), other aspects such as the functional structures of skeletal and nervous systems as well as practice will be developed. In particular the nervous system will illustrate the complex level of organisation in the organism structure. For that purpose, it will be used as an object for both studying the levels of interactions between cell populations and placing these relations into an environmental and evolutionary context. The volume available to BIR students is 1 ECTS.
Module C -- Thorough study of a question in animal biology by means of problem based learning (1.5 ECTS) - For BIOL students, the evolutionary or functional dimension in Invertebrates will be elaborated. For BIR students (1 ECTS), the problem will be related to the cell physiology by analysing mechanisms controlling the specialisation and adaptation of cells. These notions will be applied to questions such as the regulation of cellular proliferation and differentiation, membrane transport, motility, excitability, #