


 Faculty of Sciences

**BIO1351 Ecology of individuals and populations**

[50h] 4 credits

This course is not taught in 2005-2006

This course is taught in the 1st semester

Language: French

Level: First cycle

**Aims**

To give an outline of spatial-temporal mechanisms of adaptation of living beings, of the way populations and their regulation systems function.

In particular, analysis of population-environment systems are seen and emphasis on correlations between natural history of individuals and population strategies with different changes in their environment. We also want the students to understand the aim and conceptual scene of behaviour ecology (relations between natural selection, ecology and behaviour) and to be able to use these concepts by testing the hypothesis in a decisional way.

**Main themes**

The first part of the course covers Demecology and population dynamics (15hrs) from data taken from observation and experimentation data of the living world. The notion of population will be seen by the study of intraspecific relations : group effect, competition and mass effect ; intraspecific competition and ecological value. Then the spatial structural notions of populations of analyzed. The demographical phenomenon of natality, growth and death and theories of density variation and numerical regulation of population are covered.

In a second part, the behavioural ecology (15hrs) tests hypotheses such as economical decisions of the individual - "trade offs". The themes covered are the following : living in a group, combats and taxation, behavioural ecology of reproduction (sexual conflicts and sexual selection, parental care and reproduction systems as well as alternative reproductive strategies). The third part of the course covers adaptative strategies of plant populations (15hrs). The primary strategies (ressource allocation)will be shown by studying particular cases, for example, of invasive exotic plants. Then strategies linked to reproduction are seen :sexual and asexual reproduction, pollination syndromes, mating system evolution, and seed ecology (dispersion, , seed bank, dormancy, germination).