Biologie générale et mécanismes de l'évolution

Lecturers
Patrick MARDULYN (Coordinator) and Martine VERCAUTEREN

Course mnemonic
BIOL-F4003

ECTS credits
5 credits

Language(s) of instruction
French

Course period
First term

Course content

Chemistry of life; definition and origin of life; procaryote and eucaryote cell organisation; molecular basis of heredity; mitosis, meiosis, and sex; mutations; natural selection, fitness and adaptation; Mendelian genetics; genetics of sexual populations; quantitative genetics.

Neutral evolution and genetic drift; elements of population evolution; phylogenies and phylogenetic inference; gene genealogies; genes and genome evolution; mechanisms of speciation; intragenomic conflicts and unit of selection; evolution of development

Objectives (and/or specific learning outcomes)

Acquiring a basic knowledge of the biological sciences: cell organisation, structure and diversity of life. Understanding the basic mechanisms of biological evolution and its consequences on the diversification of life. Identifying hypotheses on past evolution that are compatible with a set of observations (data interpretation). From a set of observations, predict the future evolution of a gene, a genome, or a set of organisms, using the knowledge acquired on the evolutionary process.

Teaching method and learning activities

Lectures, problems solving, case studies, computer data analyses.

References, bibliography and recommended reading

1) "Biology" N.A. Campbell & J.B. Reece. de Boeck.

2) N.H. Barton, D.E.G. Briggs, J.A. Eisen, DB Goldstein, et N.H. Patel, 2007: Evolution, Cold Spring Harbor Laboratory Press (ISBN: 0879696849)

Other information

Contact(s)

Patrick Mardulyn (Solbosch campus, U Building, Door C, 4th level, room 149b, pmarduly@ulb.ac.be)

Evaluation method(s)

written examination

Evaluation method(s) (additional information)

Written exam

Determination of the mark (including the weighting of partial marks)

100% for the written exam

Main language(s) of evaluation

French

Programmes

Programmes proposing this course at the faculty of Sciences

MA-BINF | Master in Bio-informatics and Modelling | finalité Research/unit 1