

5.0 credits	30.0 h + 30.0 h	2q
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Teacher(s) :	Deville Yves ; Ghislain Michel ;
Language :	Français
Place of the course	Louvain-la-Neuve
Prerequisites :	-- FSAB1401: Informatics 1 -- FSAB1402: Informatics 2 If the student has no prerequisite in biochemistry, the needed concepts will be introduced at the beginning of the theoretical course and all along the practical works.
Main themes :	Computational biology, or bioinformatics, deals with the development and the application of theoretical and applied computer science models to study biological systems. This interdisciplinary domain includes concepts related to molecular biology, biochemistry, computer science, mathematics and statistics. From a computer science point of view, it covers the design of specific data structures and algorithms, the optimization of database management systems, the use of techniques related to simulation, computer graphics and WEB interfaces.
Aims :	-- to understand, design, develop and use computer tools dealing with the management and treatment of biological data -- to be able to make an argued choice between various computer techniques to solve bioinformatic problems -- to understand basic biological concepts needed to design, develop and use bioinformatic tools -- to be able to apply bioinformatic tools to solve fundamental and applied problems related to the life science domain <i>The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".</i>
Teaching methods :	The theoretical part goes together with exercises realized on computers. The practical work aims to apply bioinformatic tools to the study of molecular evolution and to the prediction of biochemical properties of nucleic acids and proteins.
Content :	-- Introduction -- Biochemical networks -- Search in biological databases -- Comparison and alignment of sequences (simple and multiple) -- Learning and search of motifs -- Phylogenetic trees -- DNA microarrays
Cycle and year of study :	> Master [120] in Electro-mechanical Engineering > Master [120] in Mechanical Engineering > Master [120] in Biomedical Engineering > Master [120] in Computer Science and Engineering > Master [120] in Computer Science > Master [120] in Electrical Engineering > Master [120] in Mathematical Engineering
Faculty or entity in charge:	GBIO