

5.0 credits	30.0 h + 15.0 h	1q
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Teacher(s) :	Dupont Pierre ;
Language :	Anglais
Place of the course	Louvain-la-Neuve
Inline resources:	<a href="http://www.icampus.ucl.ac.be/claroline/course/index.php?cid=LINGI2368">http://www.icampus.ucl.ac.be/claroline/course/index.php?cid=LINGI2368</a>
Prerequisites :	-- SIN1121 Data Structures and Algorithms -- INGI2261 Artificial Intelligence: representation and reasoning
Main themes :	Computational biology, or bioinformatics, deals with the development and application of theoretical models and practical data processing tools for the study of biological systems. This interdisciplinary field includes contributions from molecular biology, biochemistry, computer science, mathematics and statistics. From a computer science viewpoint, it involves the design of specific data structures and efficient algorithms, the use of optimized database systems, simulation techniques, computer graphics and web interfaces.
Aims :	-- To understand the basics in biology to design, to develop and to use computational biology tools -- To justify the use of a particular computer technique to solve a computational biology problem -- To design, develop and use specific computational biology software tools <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 :	lectures and student seminars
Content :	-- Sequence statistics -- Gene finding -- Sequence alignment techniques -- Phylogenetic analysis -- Hidden Markov Models -- Structure prediction -- DNA microarrays -- Whole genome analysis -- Identification of regulatory sequences
Bibliography :	Reference Book Nello Cristianini and Matthew W. Hahn, "Introduction to Computational Genomics, A Case Studies Approach", Cambridge University Press, 2006 Mandatory material The mandatory material for this course is defined as the set of documents and slides made available on this website, together with the oral communications and talks given during the lectures, including the chapters of the reference book covered during those lectures. None of this material can be consulted during the final examination (closed book exam).
Cycle and year of study :	<a href="#">&gt; Master [120] in Statistics: Biostatistics</a> <a href="#">&gt; Master [120] in Computer Science and Engineering</a> <a href="#">&gt; Master [120] in Computer Science</a>
Faculty or entity in charge:	INFO