MASTER IN BIOINFORMATICS

Masters in bioinformatics are accessible from September 2007 at the ULg.

For a complete list of the courses and their content, please have a look at the website:

http://www.facsc.ulg.ac.be/bologne.htm

Master in bioinformatics and modelling is directly accessible to bachelor degrees in computer science, biology, chemistry, engineer (with computer science option) and bioengineer.

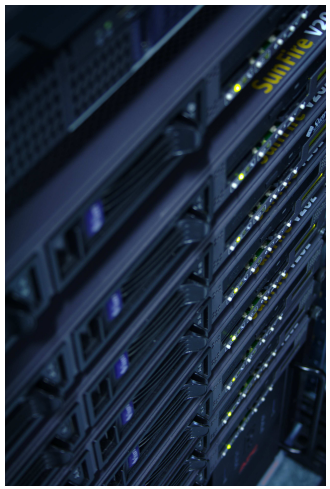
What are the career prospects?

- ***Fundamental research:***

PhD thesis, research in university laboratories or in public/private sectors

- **Applied research:**

Research and development in pharmaceuticals or biotech companies



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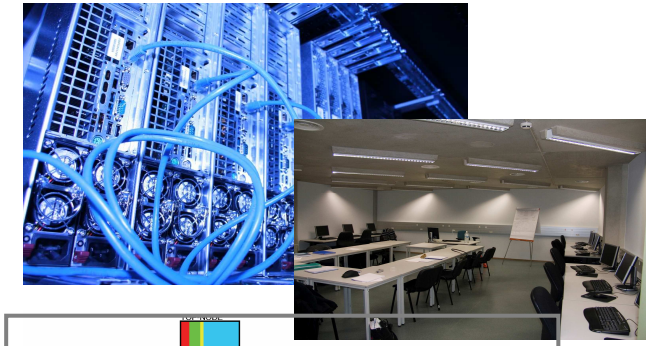
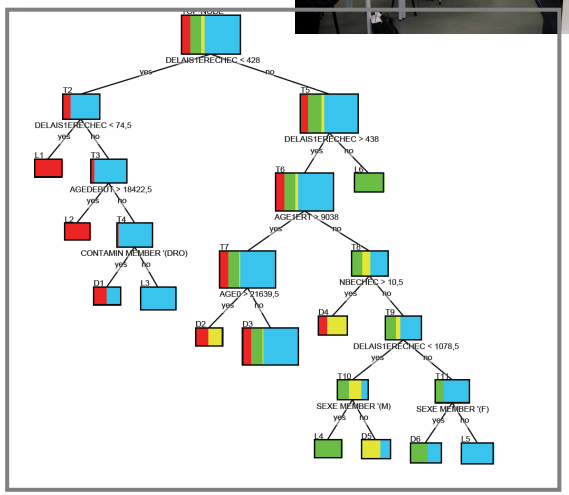
ULg UNIVERSITÉ de Liège — GIGA — alma·grid the virtual lab

INTRODUCTION TO BIOINFORMATICS





FOREM formation — RÉGION WALLONNE — interreg

ALMA-GRID & GIGA PROJECTS

The Euregio Meuse Rhine is one of the densest Life Sciences regions in Europe facing new technological challenges created by the "omics" revolution. The **alma-grid** project is ***a virtual lab linking the four geno-centres of Liège, Aachen, Maastricht and Hasselt*** that answers these challenges by offering both the required expertise and a sizeable infrastructure.

Alma-grid is a 3-year project that has now reached the step of the implementation of its IT infrastructure, at the core of the virtual lab linking the four geno-centres. Alma-grid is coordinated by the GIGA.

GIGA is the Interdisciplinary Cluster for Applied Geno-proteomics of Liège University, Belgium. It specializes in genoproteomics applied to biomedical research. Located within the University Hospital complex, it boasts a unique structure integrating five axes:

- A multidisciplinary academic research centre (275 scientists), whose primary focus is genoproteomics applied to cancer and inflammation.
- Integrated technological platforms in bioinformatics, genomics, proteomics, transcriptomics, transgenics (mouse), zebrafish, protein production & purification, and imaging & flow cytometry.
- The "GIGA Espace Entreprises" GEE, host for biomedical companies and the Walloon incubator "Wallonia Biotech Coaching" for start-ups.
- A biotechnology training centre, in partnership with "FOREM Formation", dedicated to continuing education for career development.
- A technology transfer office.

EXPERTISE

The training centre in Biotechnology is an integral part of the GIGA in close interaction with the research centre. This is a strategic point, as the researchers of the GIGA are intervening as trainers, and the created contacts with biotech companies are strengthening the GIGA centre.
The trainers of the GIGA/alma-grid Bioinformatics team have all required expertise to give high quality training in this specific field.

CONTEXT: WHY LEARNING BIOINFORMATICS?

Bioinformatics may be defined as the application of computer tools to the management and exploitation of biological data. This field has known a tremendous expansion these last years thanks to the invention of new instrumentation techniques (sequencing techniques, DNA chips, mass Spectrometry...) and thanks to the exponential growth of available biological databases.

PUBLIC AND PREREQUISITES

This training session is dedicated to biologists, doctors in medicine, engineers, computer scientists, researchers involved in the process of life science data analysis, or researchers willing to be initiated to this field. Some computer practise is needed.

GOALS

This training aims at:
- initiating the participants to the field of bioinformatics and to the techniques of data analysis coming from automatic learning
- familiarizing the participants with the use of computer science tools for the analysis of proteomic and genomic data.

COURSES PROGRAMME

Monday October 1st 2007.

General introduction to bioinformatics: introduction to the post-genomic biology, sequence analysis tools,...

Tuesday October 2nd 2007

Theoretical introduction to the field of supervised learning. The approached themes will be, among others, the preparation and pre-treatment of data, evaluation of models, variable selection, classification methods (decision tree methods, ensemble methods and support vector machines). The theoretical presentation will be illustrated by issues coming from bioinformatics.

Wednesday October 3rd 2007

Study of practical cases with the analysis of genomic data (DNA biochips) and proteomic data (mass spectrometry) to elaborate diagnostic rules.
During the supervised practical works, the participants will use a data mining software for the analysis of real biological data.

Deadline for Registration: September 9 2007

The 3-day training will be held in the "FOREM Formation" room, located at the B34, CHU - GIGA building, 2nd floor
Avenue de l'Hôpital 1
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