Lecturer: Kristel Van Steen

Language(s) of instruction:

English

Organisation and examination:

Teaching in the first semester. Written exam in January.

Course contents:

In this course an introduction to the bioinformatics discipline is given. We do so by introducing the students to several analysis work flows corresponding to different research questions.

Typical topics that are covered in this course include:

- The value of bioinformatics data bases
- DNA sequence exploration
- DNA sequence comparison
- Phylogenetics
- Genome-wide association screening using SNP chip arrays
- DNA sequence association analysis
- Gene network inference

The content of the course may be adapted during the course of the year, depending on the need to spend more time on particular subtopics.

Learning outcomes of the course:

At the end of the course, students have an idea about what bioinformatics entails as a profession. Since this course is an introductory course, students will be evaluated about key concepts related to each subtopic, rather than in-depth understanding of each subfield.

Prerequisites and co-requisites/ Recommended optional programme components:

The course requires a good knowledge of biomedicine or informatics.

Planned learning activities and teaching methods:

The course is in part based on interactive ex-cathedra lectures and in part on interactive practical sessions. The exercise sessions allow students to become familiar with the theoretical concepts introduced during the theory classes. They prepare students to successfully carry out their homework assignments. Regarding the homework assignments, three homework styles are presented: 1) literature-based (i.e., discussing a paper related to the class topic); 2) programming-based (i.e., targeting students with a strong informatics background); 3) classic style
(i.e., questions-answers type of homework). Students can work in groups but should select at least 2 styles throughout the course and at least once a literature-based homework. The latter are presented and discussed in class, to further clarify concepts covered during the theoretical or practical course sessions.

Mode of delivery (face-to-face; distance-learning):

   Face-to-face.

Recommended or required readings:

Since a variety of « hot » topics are covered, there is no single textbook. Useful references will be given as the course progresses.
All course material is posted on the website
http://www.montefiore.ulg.ac.be/~kbessonov/courses.html

Assessment methods and criteria:

Students are assessed via homework assignments and on the basis of a written exam in the first session. In the second session, students will only be assessed via a written exam. The exam is open book and covers material from both the theoretical and practical sessions.

Work placement(s):

Organizational remarks:

The course is organized in the first quadrimestre. The detailed calendar and announcements are available on the course website:
http://www.montefiore.ulg.ac.be/~kbessonov/courses.html

Contacts:

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Preferred contact mode: e-mail (include GBIO0009 in the subject title) or personal contact after a lecture or by appointment