COURSE SYLLABUS

Data Analysis

2425-1-F0901D043

Aims

Basic knowledge of the most important statistical-methodological tools of the descriptive and inferential statistics for: design of experiments, data collection and analysis, interpretation of scientific literature. Introduction to the main problems related to the computational analysis of biological sequences (DNA, RNA, proteins).

The student will be able to: understand the main concepts of study design, implement statistical analysis, read the scientific literature presenting descriptive and inferential statistic results, acquire the basic knowledge and concepts related to computational methods and techniques for collecting, managing and analyzing data in molecular biology and will master the main computational tools necessary to extract information of interest for biomedical research from the main sequencing databases.

Contents

The goal of the course is to contribute to the education of the medical biotechnologist in order to be able to:

- understand the principles of the experimental design in medicine and biology
- understand the most important statistical techniques for data analysis
- use a software for data analysis
- understand the literature presenting results from statistical analysis
- understand the motivations, problems and methodologies.
- be introduced to NGS technologies
- be able to access, query and entry data in the main databases;
- understand the main data analysis techniques: genome reconstruction and annotation; sequence comparison: global, local and multiple alignment algorithms; reconstruction of phylogenies; transcriptome analysis.

Detailed program

Information in the syllabus of each segment

Prerequisites

The student is expected to have a basic knowledge on the use of personal computer, informatics and molecular biology.

Teaching form

Information in the syllabus of each segment

Textbook and teaching resource

Information in the syllabus of each segment

Semester

First semester.

Assessment method

Written exam (Biostatistics) and Oral exam (Bioinformatics). The grade will be calculated by averaging the grades of the two modules.

Communications relating to organizational aspects of the appeals will be given through the forum on the "Biostatistics" page.

Office hours

Information in the syllabus of each segment

Sustainable Development Goals