

Molecular Biology

1. Course Presentation

40 hours
3 ECTS credits

Teaching language: English

Teacher in charge of the course: Prof Sophie Revillon, Faculty of Economics and Business (FGES), Université Catholique de Lille

Specialist lecturers: Massy Hassani, PhD student, University of Ottawa

ACADEMIC CALENDAR:
24 May to 22 June 2018

Course objective:

At the end of the course, the students will have an enhanced background in molecular genetics. The two main learning objectives of this course are; the development of an understanding of gene expression and gene regulation, and the familiarization of students with the experimental approaches used in molecular biology.



Educational methods

Lectures

Case study

Share of Experiences

Group Work

Fieldtrips

Workload

40 hours Class teaching + 25 hours homework
= 65 hours

Assessment

Continuous assessment (percentage break down 20%)

> 4 homework assignments (5% each)

Final exam (percentage break down 60%) of 2 hours

In class participation (percentage break down 20%)

Prerequisite:

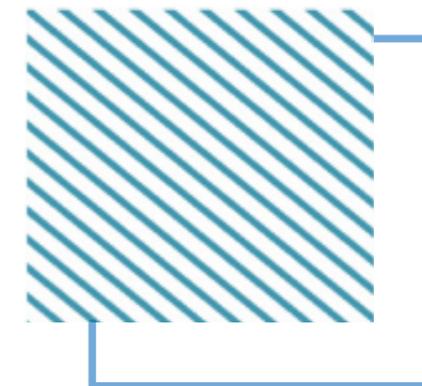
Understand and speak academic level English. To take this course, the student must have a solid scientific and technical culture, after at least 2 semesters at University. They must have some ability to work as a group and for those whose mother tongue is not English, be able to communicate easily in English.



2. Content

The topics covered include; the structure and replication of DNA, chromosome organization, the molecular basis of gene regulation and how gene expression is tied to intracellular and extracellular factors by signal transduction pathways.

To provide students with an appreciation of the experimental approaches used to do research in molecular biology several important experiments including the methodologies used to perform them will be covered.



3. Ressources

Robert F. Weaver, Molecular Biology, 5th edition.

In addition, students should have access to recent textbooks in genetics, biochemistry and cell biology.

Session 1: Introduction to DNA, genes and genetic information
Session 2: The genetic code and causes of genetic disorders
Session 3: Methods in molecular biology
Session 4: Overview of translation and transcription
Session 5: Post-transcriptional events and control of gene expression
Session 6: Molecular tools for studying gene expression
Session 7: DNA protein interactions and gene regulation
Session 8: Cell Cycle, Cell Signaling and Cancer