BIOL2137 Molecular genetics

[30h+15h exercises] 3.5 credits

This course is taught in the 1st semester

Teacher(s):	Jean Delcour, Bernard Hallet
Language:	French
Level:	Second cycle

Aims

Study of the genes and the genome as molecuar entities that we describe and try so hard to understand their replication, transcription, and translation.
CONCERNS: mandatory for BIOL21 (partim 30-0 in BIOL21b) students.

Main themes

1/ General problematics of molecular genetics
2/ Structure and organization of the genome
3/ Translation system
4/ Initiation of translation in procaryotes
5/ Initiation of translation in eucaryotes
6/ Genetic code
7/ Translation regulation
8/ Transcription system in procaryotes
9/ Initiation of transcription in procaryotes
10/ Regulation of transcription in procaryotes
11/ Transcription system in eucaryotes
12/ Initiation of transcription in eucaryotes
13/ Regultion of transcription in eucaryotes
14/ Post-transcriptionnal maturation
15/ Replication system
16/ Replication genetics in procaryotes
17/ Repairing DNA
18/ Recombination
19/ Transposition in procaryotes
20/ Transposition in eucaryotes

Other information (prerequisite, evaluation (assessment methods), course materials recommended readings, ...)

Prerequisites: basics in genetics, cellular biology and biochemistry (BIOL12 level).
Assisted work: seminars consist in presentation and discussion (by the teacher) of some articles (3-5). They aim to illustrate in concrete terms some chapters of the course to familiarize students with the most frequently used methods in research: cloning, sequencing, restriction cartography, Southern and Northern blotting, mapping S1 and primer extension, directed mutagenesis, reporter gene.
Support: Genes VII (B. Lewin), photocopies.

Other credits in programs

BIOL21/A	Première licence en sciences biologiques (Biologie moléculaire, cellulaire et humaine)	Mandatory
CHIM22	Deuxième licence en sciences chimiques	