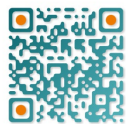


**Lycée
Saint Louis**

**Lycée des métiers
de la Biologie et de la Chimie**

BTS BIOTECHNOLOGIES
a 2-year technical degree
in Biotechnology

Rue Jean Hameau, BP233
33028 Bordeaux - France
Tél : 05 56 69 35 95
ce.0332468d@ac-bordeaux.fr
<http://www.lyceesaintlouis.fr>



A Biotechnology Lab Technician graduated from Saint Louis is able to perform autonomously most of the experiments done in a research lab respecting appropriate safety rules. Indeed, we teach various vocational subjects such as analytical biochemistry, molecular biology, protein biochemistry, microbiology, animal and plant cell culture.

Furthermore, our students are able to analyse the results of experiments, improve protocols, use bibliographic databases, and perform databases queries.

They can also understand research articles, they can present their lab work in English and are familiar with word processing, spread sheet, slide show software.

Purpose of the course

Once they graduated, our students are ready to take up positions as lab technicians in research or production labs using biotechnology processes. They can be technical co-workers in R/D departments, in academic research labs (pharmaceutics, cosmetics, food ...).

"BTS" Graduation

The students follow a 2-year practical and theoretical course after their A-levels. Their graduation is validated by a French National exam (equivalent to 120 ECTS).

Vocational skills

Plan and manage

- Plan the work.
- Prepare materials.
- Manage reagents and samples
 - Manage safety rules.
- Be part of quality management.

Run/Do/Perform

- Prepare reagents and working solutions
- Prepare and pre-treat biological samples
- Run analytic and preparative methods in biochemistry, biophysics and microbiology
- Run experiments in Molecular biology, Cell biology, Enzymology, microbial Fermentation.
- Animal experiment, ethics

Analyze and design

- Analyse data and results
- Optimize protocols
- Find and understand technical documents.
- Identify and report any problem

Keep informed and communicate

- Find, collect, categorize data.
- Report to the team.

Schedule (for 2 years)

English	100 h
French	85 h
Maths	100 h
Project	16 h
Bio-Informatics	70 h
Physics & chemistry	150 h + 60 h*
Analytical biochemistry	40 h + 130 h*
Cell biology & technology	95 h + 125 h*
Molecular biology	135 h + 125 h*
Microbiology and bioreactor technology	110 h + 240 h*
Protein Biochemistry	85 h + 95 h*

Internship

In an academic or applied research lab 15 weeks

* Practicals



Cell Biology and technology

Courses (95 h)

- Eukaryotic cell organization, organelle structure and functions, cell cycle, apoptosis, mitosis
- Cellular immunology, monoclonal antibodies, vaccines
- Genetics, meiosis

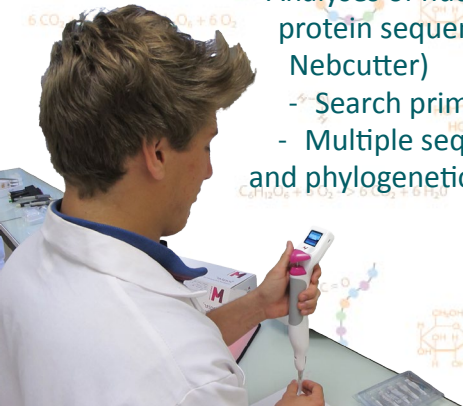


Practicals (125h)

- Mammal cell culture (adherent or suspension cells), cell suspension numeration
- Plant in vitro culture, protoplast fusion.
- Animal cell, cell transfection (liposomes)
- Immunofluorescence
- Cytotoxicity assay (MTT, neutral red)

Bioinformatic

- Querying database (Pubmed, Uniprot, ...)
- Analyses of nucleotide and protein sequences (Blast, Ncbutter)
- Search primers (Primer3)
- Multiple sequence alignment and phylogenetic tree (ClustalW2)



Microbiology and bioreactors

Courses (110 h)

- Micro-organisms : structure, classification
- Metabolism diversity, environments
- Viruses

Practicals (240 h)

- Culture, isolation characterization, conservation
- Pilot Bioreactors
- Lab-scale microorganism production (violacein)

Protein, biochemistry

Courses (85h)

- Protein structure
- Protein/ligand interaction
- Enzymes, activity, enzyme reactor, biosensors
- Protein purification

Molecular biology

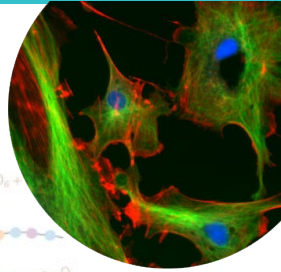
Courses (135h)

- Nucleotides, Nucleic acids structure, replication, transcription, protein synthesis
- End point and real time PCR, RT-PCR
- Plasmids, cloning, heterologous recombinant proteins synthesis induction,
- Genomics, proteomics, transgenic organisms



Practicals (125h)

- Cloning, E. coli transformation
- DNA (genomic, plasmid) & RNA preparation
- PCR, RT-PCR
- Heterologous protein synthesis induction (pET plasmids)
- Site directed Mutagenesis



Analytical biochemistry

Courses (40h)

- Chromatography (ion exchange, HIC, size exclusion, affinity)
- Electrophoresis (PAGE, pulsed-field, capillary)
- Photometries, fluorimetry, luminescence, mass spectrometry, radionuclides

Practicals (130h)

- Calibration and standards
- Measurement accuracy, quality control, waste management.
- pHmetry, conductimetry,
- Absorption, fluorimetry
- Electrophoresis: native and SDS PAGE
- Chromatography (TLC, GC, HPLC, AKTA)

