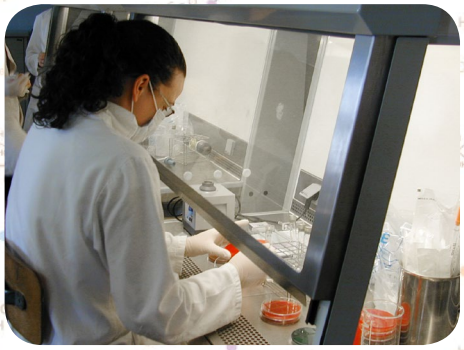
BTS Analyses de Biologie Médicale

a 2-year technical degree in biomedical science



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Bordeaux

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In Lycée Saint-Louis, we provide several technologist certificate courses, and medical laboratory science is one of them.

What are medical laboratory technologists ?

Medical laboratory technologists independently perform most of the experiments done in clinical laboratories in accordance with ISO 15189 testing requirements. They work in clinical laboratories integrated in hospitals or for private biomedical labs, as well as in biotechnology labs and non-clinical industrial laboratories.

They are able to analyse the results of experiments, improve protocol test methods and use bibliographic databases.

As a result, they can perform clinical biochemistry, haematological, immunological, histological and bacteriological diagnostic analyses on body fluids such as blood, urine, sputum, stool, cerebrospinal fluid, as well as other specimens.

In the UK the matching lab occupation is an MLSO (Medical Laboratory Scientific Officer), who has a high level of autonomy.

Purpose of the course

After graduation, our students are ready to take up positions as medical laboratory technologists. They have good analytical skills, accurate knowledge of quality control and laboratory medical technology. Therefore, they can assist clinicians in the prevention, diagnosis and treatment of diseases.

Furthermore, around 50% of them choose to continue their studies and complete professional degrees at university.

"BTS" (The certification)

After their A-levels, the 2-year course provides our students with a comprehensive scientific education and a training period in each year. In France it is an approved national certification.

Professional skills required:

Plan and manage

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

Run/Do/Perform

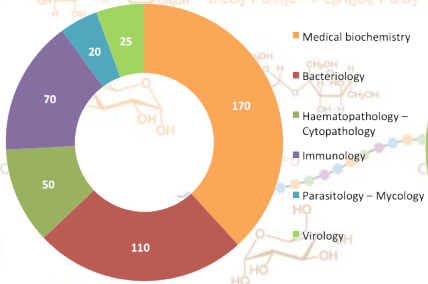
- Prepare reagents and working solutions
- Prepare and pre-treat biological samples
- Run analytical and preparative methods in biochemistry, haematology, Immunology, molecular biology, enzymology and microbiology
- Check and use automated analysers
- Realize first level maintenance of automated analysers

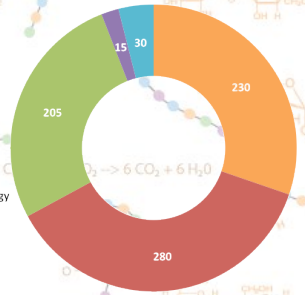
Analyse and design

- Analyse data and results
- Optimise protocols
- Find and understand technical documents.
- Identify and report any problem
- Keep informed and communicate
- Find, collect, categorise data.
- Report to the team.

Internship:

This two-year training includes 2 periods of internship (12 weeks in total) in hospitals and private biomedical laboratories.





Medical biochemistry

Courses (170 h)

Classical biochemistry (structure, function and regulation of cells, sugar, proteins, nucleic acids, lipids). Enzymology. Genetics and molecular biology.

Theoretical clinical biochemistry.

Practicals (233 h)

Tests based on the use and measurement of enzyme activities, electrophoresis, spectrophotometry and immunoassays : Electrolyte tests ; Renal Function Tests ; Liver function tests ; Cardiac Markers ; Blood disorders (iron, transferrin …) ; Clinical endocrinology ; Urinalysis …

Bacteriology

Courses (110 h)

Microbial cell structure, ecology, taxonomy and genetics.

Microbial identification (biochemical tests, immunological tests, polymerase chain reaction)

Medical microbiology : urinary tract infection, blood culture, bacterial gastroenteritis and skin infection, bacterial pneumonia, automated bacteriological culture system …

Practicals (283 h)

Microbial culture and isolation

Microbial identification (biochemical tests, immunological tests)

Use of biological safety cabinet (BSC) for airborne disease germs.

Bacterial treatment (antibiotic resistance tests : EUCAST)

Haematopathology – Cytopathology

Courses (50 h)

Haematology and haematopathology.

Theoretical knowledge on normal blood composition.

Blood transfusion rules. Anemia, haemophilia, haemoglobinopathies.

Disease of haematopoietic cells: Myeloid (leukemia) and lymphoid (Hodgkin lymphoma) neoplasms …

Practicals (205 h)

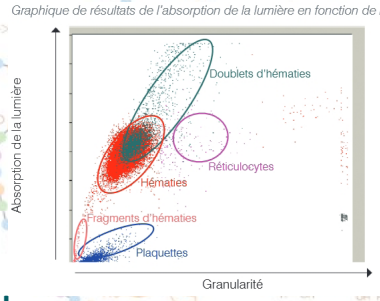
Manual and automated analysis of blood.

Blood transfusion test.

Blood disorders analysis.

Haemostasis tests.

Flow cytometry analysis (blood cell counter and typing)



Immunology

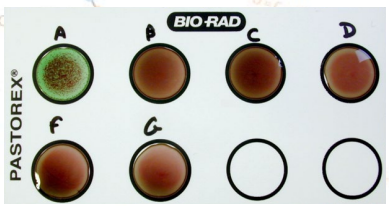
Courses (70 h)

Immunology basic knowledge : innate immune system, adaptive immune system.

Disorders of human immunity : immunodeficiency, autoimmunity and hypersensitivity. Flow cytometry/ FACS

Practicals (15 h)

Antigen-Antibody based tests: Immunofluorescence assay. Enzyme-linked immunosorbent assay (ELISA). Fluorescent based microsphere-based immunoassay.



Parasitology – Mycology

Courses (20 h)

Knowledge on endoparasites (blood parasite). Life cycle of principal parasites: Plasmodium, Entamoeba, Giardia, Trypanosoma, Toxoplasma, Schistosoma, Taenia …

Practicals (30 h)

Technical pratices for diagnosis: Blood examinations (thick and thin blood films…), Faecal examination (Freshstools, SAF-ether concentration) and immune methods.

Virology Courses (25 h)

Virology structure, replication, spreading, diagnosis, treatment. Virus disease (AIDS, Hepatitis, Influenza, Poliomyelitis…) Mammalian cell culture.

Blood sample certificate

(Courses 15 h)

First step to blood sample certification

Specific vocational

Course (70 h)

Legislation. French organisation of Biomedical laboratories. French quality system (ISO15189 ; ISO 22870) ; Total quality management ; Six sigma ; Levey and Jennings chart. Shewart chart. Exponentially-Weighted Moving Average chart.