

## Biochemistry

### Industrial and environmental biochemistry

#### IDENTIFICATION

CODE : BS-5-S1-EC-COBIENV  
ECTS : 2.0

#### HOURS

Lectures : 24.0 h  
Seminars : 0.0 h  
Laboratory : 0.0 h  
Project : 0.0 h  
Teacher-student  
contact : 24.0 h  
Personal work : 26.0 h  
Total : 50.0 h

#### ASSESSMENT METHOD

#### TEACHING AIDS

#### TEACHING LANGUAGE

French

#### CONTACT

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#### AIMS

At the industrial stage, biochemistry helps to create alternative sources of supply capable of lowering the environmental footprint. Producing differently and producing better are today's fundamental challenges. Biochemistry provides high-performance technological solutions.

The educational objective is to train future engineers in the basic principles of development, scaling, optimization and valorization of bioprocesses.

This option proposes to present the essential elements of the engineering approach, particularly in the environmental and pharmaceutical fields, as well as the main concepts derived from them.

#### CONTENT

- 1) Metabolic Engineering - Description and elements of development, scale-up, optimization and valorization of bioprocess.
- 2) Alternative sources of supply to reduce the environmental footprint.
- 3) Real case studies (illustrations by examples such as microalgae and biofuels or alicaments). Interventions/discussions with Green Tech industrial actors could be scheduled.
- 1) Metabolic Engineering - Description and elements of development, scale-up, optimization and valorization of bioprocesses in the environmental, energy, food, cosmetic and pharmaceutical fields.
- 2) Alternative sources of supply to reduce the environmental footprint.
- 3) Real case studies. Illustrations by examples such as: biofuels (oil and derivatives from lipids, alcohol from sugars; algae fuels from micro-algae; biomasses used, biotechnologies implemented and environmental impact); alicaments (production, which industrial biotechnologies of transformation, biomass resources, nutrition and health). Interventions and discussions with Green Tech industrial actors could be scheduled.