



Assignment internship background student Environmental Engineering, Chemical Engineering, Chemical Technology, Applied/Industrial Chemistry

Living Lab Biobased Brazil

The Living Lab Biobased Brazil is a transnational Living Lab in the field of Biobased Economy, created in 2014 by a consortium of Dutch Universities of Applied Sciences in collaboration with several Brazilian universities. The Living Lab helps students with internships and graduation projects in Brazil with the focus on Biobased Economy. We also help students finding accommodation, and offer buddy support, Portuguese classes, a bye-bye meeting and an introduction weekend in Brazil

In return the Living Lab expects you contribute to the Living Lab blog. You have to blog about your personal and internship experiences during your stay in Brazil. We also expect you to participate in the mini symposium at the end of each semester.

These events help you to increase your personal network and is focused on your personal development! For more information please visit <https://www.biobasedbrazil.org/student/brazil/>.

Company/University information:

The Federal University of Ouro Preto (Portuguese: Universidade Federal de Ouro Preto, UFOP) was established in August 21, 1969 from the merger of two century-old higher education institutions: the School Pharmacy of Ouro Preto, founded in 1839, and School of Mines of Ouro Preto founded in 1876, both located in Ouro Preto, Minas Gerais. Today is one of the most important universities of Minas Gerais and also Brazil. The university is taken as a reference throughout the country by the School of Pharmacy and Engineering.

Research Project:

Anaerobic digestion of residues/effluents for energy and added value products recovery.

Internship for students with background in:

Undergraduate programs: environmental engineering, chemical engineering, chemical technology, applied/industrial chemistry.

General background:

Anaerobic processes for the treatment of effluents and solid residues, domestic and industrial are environmentally friendly technologies and are core the so called biorefinery concept. Such technology has smaller operation and implementation costs when compared to its aerobic counterpart, besides consuming less energy and producing biogas, a non-fossil fuel, of which methane is the main component. Those characteristics give a great potential to apply anaerobic digestion in tropical (higher water temperature) and developing countries (lower investment capacity) and, indeed Brazil is one of the countries that is most active in research development in the use of this technology as first step of sanitary sewage treatment. More than solving environmental problems caused by the discharge of residues and effluents in natura in the environment, the anaerobic technology also allows the recovery of energy and value-added bioproducts from the solid residues/effluents to be treated. The energy recovery happens through recovery, purification and biogas burning; while bioproducts recovery can happen by channelling



the metabolic processes for the production/accumulation of value-added compounds, such as polyhydroxyalkanoates - PHA (i.e. polyhydroxybutyrate) and volatile fatty acids - VFAs (i.e. propionic acid, isovaleric acid). UFOP has been developing researches in this topic from the last 12 years, especially concerning biogas production, which can be attested by the several scientific papers published, and supervision of MSc and PhD students by researchers linked to the Environmental Engineering Graduate Program.

Goal of internship:

- Orientation towards future professional performance;
- Learn and apply the desired professional attitude and profession-specific competences;
- Integrate the subject matter learnt at school and daily professional practice;
- Get acquainted with diverse activities and/or techniques;
- Enrich and extend professional knowledge;
- Prepare for participating in the field of work.

Activities:

The execution of the internship project might involve:

- Set up, planning and monitoring of lab-scale bioreactors aimed to treat organic effluents (synthetic or real ones) to recovery energy (e.g. biogas) or bioproducts;
- Help MSc and PhD students with chemical analyses for characterization of water, residues and effluents;
- Interpret experimental data and use modelling computing packages to make simulations about the economic and environmental feasibility of processes.

Starting date

September 2019.

The intern will be part of a research team lead by the adviser and supervised by Prof. Sérgio F. Aquino.

Desirable skills/qualities of the student

The student is expected to apply knowledge and competences acquired throughout his/her undergraduate course; to define and analyze problems and to accomplish a plan of activities established by/with his/her supervisor; get to know routine techniques in a chemistry and engineering lab; interpret acquired experimental data as well as arrange, make applicable and process data to solve a given environmental problem.

Information of the company:

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Living Lab Biobased Brazil
Education Research Innovation

Interested?

Please send your CV and motivation letter to Guilherme de Souza Reis.

**PLEASE BE AWARE THAT THE PROCES SUBSCRIBE AT <https://www.biobasedbrazil.org/student/brazil/>
APPLIES!**