



## Assignment internship Chemistry or Environmental sciences student

### 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 and the Netherlands with the focus on Biobased Economy. We also help students finding accommodation, and offer buddy support, Portuguese/Dutch classes, a bye-bye meeting and an introduction weekend in Brazil or the Netherlands.

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 the Netherlands. 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 see: <http://www.biobasedbrazil.org/>

### University information

Avans University of Applied Sciences was founded on 1 January 2004 following a merger of Hogeschool Brabant and Hogeschool 's-Hertogenbosch. At Avans University of Applied Sciences, around 29,000 students study 54 different courses. 2,400 employees work at 20 schools, 4 support units and 1 Learning and Innovation Centre.

Students, lecturers, professors and education professionals together form a lively network within our educational institution. Knowledge and competency development is the driving force and the connecting factor behind this.

Our varied and modern learning environment enables each student to develop his or her skills and ambitions to their maximum potential.

Our inspiring lecturers are experts in their fields and have a thorough knowledge of learning processes, enabling them to challenge students to push their boundaries and excel. The schools have structured their curricula, teaching and examinations based on our educational vision. We collaborate with a wide range of companies, professions and organizations as part of its teaching and research activities.

For more information please see the promotional YouTube video <https://www.youtube.com/watch?v=5nsPBIE04Q4> :

### Research project

Possibilities for application of Biofloculants in waste water and residue treatment



## Introduction

Biomass dewatering is, as the name implies, removing water from biomass. Dewatering is typically the final step for industrial wastewater treatment, but is also important in treatment of agricultural or aquaculture biomass streams. The most commonly used flocculants in dewatering processes are synthetic water soluble polymers based on acrylamide. However, acrylamide monomer is neurotoxic, carcinogenic and polyacrylamide is non-biodegradable in nature (Vanhorick and Moens, 1983; Dearfield et al., 1988).

The project studies environmentally sound alternatives for polyacrylamide with the focus on dewatering of biomass. In the project several bio-based flocculants will be characterized and the dewatering properties will be tested in the biomass dewatering. Potential, commercially available, bio-based products for flocculation are cationic starch (Glycanex), tannines (Serveyco, Melspring) but also polyethylene oxide flocculants (USCARFLOC; DOW) or a novel option of using Carboxy Methyl Inulin (CMI)/ Sodium carboxymethyl inulin can be considered

## Activities

- Determine capacities of bioflocculants or combinations of bioflocculants for the removing water from biomass
- Physical and chemical characterization of different bioflocculants

## Final product

The student will write a report that contains an overview of all activities and findings.

## Starting date

February 2017. The length of the assignment is approximately 5 months (20 weeks). The student who will execute the assignment get a fee of €550,- per month.

The intern will be part of a research team lead by the adviser and supervised by a professors of the Biobased energy group. For more information please see: <https://www.coebbe.nl/>

## Desirable skills/qualities of the student

Good knowledge of the English language is required. The background of the student is (analytical) chemistry or environmental sciences at undergraduate, graduate or PhD level depending on the focus of the internship.

## Interested?

Please contact the following person of your home university:

### Brazilian University

UFMG

UFV

PUC Minas

### Contact person

Daniel Rotsen

Prof. Vladimir Oliveira Di Iorio

Prof. Laura Hamdan de Andrade

### Contact information

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