

Internship offer (Research, 4 months, Master 1 or equivalent)

Sequestering carbon through agricultural management: possibilities and priorities

Background

The internship position is part of the [Cambioscop](#) project, awarded in 2017 to Prof. Lorie Hamelin. Cambioscop's objective is to propose sustainable strategies for shifting towards low fossil carbon use in France, by 2050. This transition requires to enhance carbon circularity and carbon farming, among others. Indeed, though the energy sector can be decarbonized, non-fossil carbon sources will still be needed for the chemical, material and food sectors. Reaching climate neutrality implies not only technologies and solutions to decarbonize or mitigate greenhouse gases (GHG), but also negative emission technologies to permanently remove GHG from the atmosphere, and technologies to substitute fossil carbon by renewable carbon. Cambioscop project proposes to address these issues by developing a foundation for establishing geolocalized, time-dependent and sustainable strategies for the development of bioeconomy in France, looking at systems in integration rather than optimizing each in isolation as typically done. The lack of such integrated tools is acknowledged in the French bioeconomy strategy communication. The vision is to support decision makers in their investment choices today, so these are consistent with a sustainable and competitive bioeconomy tomorrow. Within this project, the main objective of the internship is to unravel the potential of negative emissions solutions, and more precisely to assess the role of agriculture for long-term carbon sequestration, task led by Dr. Christhell Andrade.

Description

The research internship project is separated into two phases. First, we propose to (i) list and classify the possibilities for sequestration of carbon into agricultural soils (e.g. erosion management, return of bioeconomy co-products like biochar, use of cover crops, biotechnology solutions like coated seeds promoting healthy roots, etc.). Based on the identified solutions, the second phase will focus in building a semi-quantitative prioritization tool (based on selected key performance indicators) to guide decision-making for investing in these technologies.

Required qualification

- At least a Bachelor degree in science (Bsc), preferably Master 1 equivalent
- Domains: Process or Environmental or Biochemical or Industrial engineering, or Agricultural science
- Willing to learn, proactivity, autonomy, rigor, curiosity
- Either proficiency in French and/or English (both not required)

Application procedure

To apply, please submit your updated **CV and cover letter** describing your interests in, and fit for, the position to chris.andraded@gmail.com using in the subject line of your email: [Sequ Carbon Intern Application – *your name*].

Applications will be reviewed on a rolling basis until the position is filled, but those received by **January 26th, 2024** will be guaranteed full consideration. Only short-listed applicants will be contacted.

Period:	4 months, starting from 1st of March 2024 (or latest 1st of April 2024)
Place:	Toulouse Biotechnology Institute (TBI), INSA Toulouse, 135 Avenue de Rangueil, 31400 Toulouse
Benefits:	4.05€/h (35h/week). 50% of public transport fees refunded. Office equipment including a laptop is provided during the internship.
Contact:	Dr. Christhell Andrade (chris.andraded@gmail.com), Post-doctoral fellow in the team

More about our Bioeconomy group

The research group is led by Prof. Lorie Hamelin, who holds the Professor Chair on Transition towards low fossil carbon awarded by the [French National Institute for Agriculture, Food and Environment](#) (INRAE). The group carries out research on Sustainable Bioeconomy Transitions at the [Department of Sustainable Process Engineering](#) of INSA Toulouse. Within our work, the environmental efficiency of >100 bioeconomy conversion pathways has been assessed towards the horizon 2050. The vision is to contribute to the most comprehensive and integrated bioeconomy strategy in Europe. A YouTube Channel of the group is available [here](#). We are well acknowledged nationally and internationally, as reflected by our involvement in several large national projects related to bioeconomy (FairCarboN) or bio-based materials (B-BEST), as well as European projects (ALIGNED, LCA4BIO). Our postdocs, PhDs, visiting PhDs, and master students come from all over the World. This all provides a unique dynamic international and multi-disciplinary environment to carry out meaningful and frontier research experience.