

Evaluation and optimisation of the environmental and nutritional sustainability of University-student meals

Full title: « Evaluation and optimisation of the environmental and nutritional sustainability of University-student meals: A mixed-methods approach combining Life-Cycle Assessment (LCA), mobile tracking, and qualitative interviews on the Paris-Saclay campus »

Context

Students who are still undergoing physiological growth have specific nutritional needs (energy, iron, calcium, vitamins D and B) that differ from those of adults and children¹. Many of them also face financial constraints to meet these needs. University catering services, the main providers of their midday meal, offer an economical solution, yet their environmental impacts (in particular regarding greenhouse gas emissions, water consumption, and land use) are poorly documented and likely to exceed planetary-boundaries². Moreover, meals supplied by collective catering only represent a fraction of students' daily food intake. Their dietary patterns are also shaped by a variety of contexts (eating alone vs. with friends - family), which leads to highly heterogeneous dish compositions.³

PhD objectives

The research question addressed by this PhD thesis is the following : how does students' food consumption influences their nutritional and environmental balance, both through collective catering and food consumed outside the catering system? The levers that could shift this balance toward compatibility with planetary boundaries and with students' physiological/nutritional requirements will be examined (e.g., evolution of collective catering, awareness-raising, targeted subsidies, education, etc.).

The study will be conducted on the Saclay plateau and will involve several groups of students from distinct programmes of study. This diversity will enable the investigation of whether differences in nutritional knowledge, gender, and social group influence the control panels. An exploratory component will clarify how these students manage and organise their food intake (e.g. collective catering, take-away, home-cooking) and the nature of the dishes they consume. This work involves the following steps:

- Estimating meals consumed in collective catering settings through the analysis and modelling of recipes and food products offered, combined with the quantification of portion sizes served on plates.
- Co-developing a mobile application to collect, reliably and at large scale, the quantities and nutritional quality of meals⁴ eaten in and outside of the collective catering.
- Conducting semi-structured interviews to complement the quantitative findings by revealing perceived barriers (budget, time, knowledge)⁵.

¹ <https://www.fao.org/4/y5686e/y5686e00.htm>

² https://theses.hal.science/tel-04913302v1/file/139552_ARRAZAT_2024_archivage.pdf

³ <https://doi.org/10.3917/dec.dubet.2017.02.0117>

⁴ <https://doi.org/10.1111/1750-3841.70116>

⁵ <https://doi.org/10.3390/nu18020228>

The collected data will be analysed from both a nutritional and an environmental perspective, using the CIQUAL database, the AgriBalyse and Eco-invent life-cycle-assessment (LCA) databases.

This work, which combines experimental, technological, and sociological approaches, will highlight nutritional and environmental “hotspots” and barriers to improve student alimentation. It will identify potential levers to reduce environmental impacts and enhance the nutritional quality of meals, reconciling student health, sustainability objectives, and economic accessibility.

Expected profile and skills

Applicants must be curious and proactive, motivated by research and hold a relevant MSc (M2) degree in environmental science, computer science or other disciplines with relevant specialization. Candidates must be motivated to acquire and develop strong computational and analytical skills. Experience with LCA modelling and/or with data processing in Python or R and/or with conducting semi-directive interviews is an advantage for this application.

Additional requirements include fluency in English and French, strong oral and written communication skills, as well as the ability to work both independently on certain topics and as part of a team on the overall construction of the project.

Work environment

The PhD student will be part of an international research environment and will benefit from a partership with a private company (sponsor) working in the construction industry. She/he will be based at the Palaiseau campus of AgroParisTech/Université Paris-Saclay, in its ECOSYS and Sayfood joint research units (91 120 Palaiseau, France), multidisciplinary groups of ~90 scientists each. As this the PhD is funded and supported financially and scientifically by the Lab Recherche Environment (private chair from Vinci). Interactions with the Lab are to be expected in order to articulate operational needs and research barriers.

The student will be supervised by Karine Dufossé (Associate Professor in environmental evaluations, AgroParisTech), Gwenola Yannou-Le Bris (Professor in sustainable innovation management, AgroParisTech), Marine Masson (Associate Professor in Consumer Behaviour). Collaborations with other French or international laboratories are possible.

Terms & Conditions	How to apply
- Location: AgroParisTech, Paris-Saclay - Contract: PhD position - Duration : 36 months/3 years - Beginning : September 2026 - Salary: ~2,300€ gross monthly (adjusted according to experience) - Reimbursed public transport (75%), flexible working hours - Secularism: The recruited person will be subject to the charter on secularism in public services (French law 2021-1109 of 24 August 2021). In particular, no religious symbols may be worn in the workplace	Send a CV and cover letter (references are also appreciated) to karine.dufosse@agroparistech.fr gwenola.yannou-lebris@agroparistech.fr Application deadline: July 5th 2026 Early applications welcome For selected candidates, a video interview will be scheduled on the morning of July 16th 2026