Life Cycle Assessment for Research

**July 9-10, 2025**

**Duration:** 2 days – Maximum 10 participants

The implementation of Life Cycle Assessments (LCA) is currently the most advanced tool for evaluating the environmental impacts of a system (product, process, service, or organization). However, LCA remains complex to grasp, and comparing different studies is often problematic. Accessing inventory data to conduct LCA is also a challenge, requiring either the purchase of expensive specialized databases or the ability to create them independently.

In scientific research, it is difficult to anticipate how the obtained results will be used or how they might be industrialized. This topic has been explored at the G-SCOP laboratory for several years, and this training aims to share the current state of knowledge in the field. It will also allow researchers (permanent staff, PhD students, engineers, or postdoctoral researchers) to familiarize themselves with two common LCA tools to help estimate the environmental impacts of their work.

### **Training Objectives**

* Learn to use the two most common LCA software tools through simple case studies (SIMAPRO and OpenLCA).
* Explore the application of LCA to scientific research to assess environmental impacts as early as possible in a project's development and dissemination.

### **Who is this training for?**

This training is intended for researchers who are committed to considering the environmental impacts of their work to contribute to the development of environmentally friendly solutions and to integrate LCA results into their scientific publications.

### **Prerequisites**

General knowledge of LCA and at least having read the dedicated Wikipedia page: <https://en.wikipedia.org/wiki/Life-cycle_assessment>.

### **Location**

G-SCOP Laboratory, 46 Avenue Félix Viallet, Grenoble (exact room to be specified later).

### **Program**

The program will be adjusted based on the number of participants and the questions submitted before the training begins. The number of spots is limited to 10 participants. Depending on demand, additional sessions may be organized later in the year.

#### **Day 1 (9 AM – 5 PM):**

* Introduction to key concepts: environmental impacts, sustainability vs. sustainable development, planetary boundaries, societal impacts.
* Steps of Life Cycle Assessment (LCA) and use of OpenLCA.
* Guided LCA of a cotton t-shirt.
* Comparative LCA with a polyester t-shirt.
* Introduction to advanced LCA concepts: end-of-life scenarios, allocation methods, sensitivity analysis, and uncertainty calculations.

#### **Day 2 (9 AM – 5 PM):**

* Further exploration of concepts covered on Day 1.
* Comparative presentation of OpenLCA and SimaPro.
* Conducting an LCA with SimaPro on a chosen topic.
* Discussion on scientific publications incorporating LCA results and perspectives on the future use of LCA in research. We will also identify potential training or collaboration needs for the near future.