



The 9th International Summer School on Life Cycle Approaches
to Sustainable Regional Development

– Full Program | 11 September 2020 –

Theme: *“Bio-economy and the food life cycle – A life cycle
management toolbox for sustainable regional food and biomass”*

The theme of the 2020 summer school addresses the growing interest in the sustainability issues associated with food consumption and production. In particular, it examines the influential role of life cycle methodologies in ensuring the sustainability of bio-economy initiatives and of projects that seek to enhance also the contribution of the food sector.

21 September – 08 October 2020

Virtual Event

Organized by



<https://fslci.org/lcss/lcss2020/>

DAY 0 - Friday - 18 September

Pre-event - Informal get-together

- 16:00 General online assembly of students and faculty for first contact, introduction to the summer school and its programme objectives, modus operandi, Q&A.
- 17:00 End of Pre-event

DAY 1 - Monday, 21 September

Setting the scene: Food and biomass in a globalised world

- 16:00 Welcome and general orientation to program, objective, methods (Philip Strothmann)
- 16:20 **Keynote:** Food, biomass and LCA for sustainable regions (Fritz Balkau)
- 16:40 **Discussion:** The EU Farm to Fork strategy in a SDG context and the LCM Toolbox
- 16:50 **2 Viewpoints plus Q&A:**
- From where in the world came my sandwich? A geography of the food life chain
 - Bio-mass and the food cycle – tracking mass flows and main consumers
- 17:10 **School menu project overview:** “A sustainable life cycle recipe book” (Robert Wood & Prasad Modak)
- 17:30 Synthesis of Day 1 and student feedback
- 18:00 End of Day 1

Off-line work for the next session

- Personal project I: Describe your favourite food and its life cycle: its ingredients, origins and relevant sustainability criteria
- Study Assignment #1: Short literature search on vertical farming, and summary of different life cycle stages
- Case study: In the BASF brochure (see Reading List) ‘Diet for the Earth’, note SDGs being evoked.
- Background Material: Thematic Webinar “Sustainable food production: an industry perspective” (Allan Poynton)
- Thematic webinar “LCA for Innovation in the food life cycle: vertical farming” (Naeem Adibi)

DAY 2 - Tuesday, 22 September

Life-chain optimisation of food production & consumption

- 16:00 Welcome back. Key points from Day 1. Comment on Assignment 1. Overview of Day 2
- 16:10 **Keynote:** Innovation and LCM in the food cycle: vertical farming (Naeem Adibi)
- 16:30 **Mini-workshop** (group work):
- Recall upstream life chain of food: farming, inputs, storage/transport/ processing, packaging, retailing. Recall downstream: consumption, waste food, recovery & recycling. Now look at life cycle management options.

- W1. Identify regional supply-chain improvement options for vertical farming
- W2. Propose sustainability management options for upstream materials & energy
- W3. Propose circular economy options for downstream food waste and packaging

Summarise SDGs and the use of LCM toolbox elements for a regional vertical farming system

17:15 **Group presentations:** Share and compare their outcomes via plenary chat and zoom

17:30 Synthesis of Day 2 and student feedback.

18:00 End of Day 2

Off-line work for the next session

Personal project II: Compile and review background information needed for a new menu design

Study Assignment #2: Identification of information sources for food composition and chemical content.

Background Material: Thematic webinar “Environmental Impacts of Food Production and Consumption” (Niels Jungbluth)

DAY 3 - Thursday, 24 September

Foodworks: expanded life cycle of the food chain: food and food adjuncts

16:00 Welcome back. Key points from Day 2. Comment on Assignment 2. Overview of Day 3

16:20 **Keynote lecture:** LC tools for developing products & services for the food industry (Peter Saling)

16:50 **3 Viewpoints plus Q&A:**

- sustainability realities in plastic-free food packaging
- how useful are ‘sustainable’ regional food labels?
- food and chemicals – sustainability of conventional and organic food chains

17:15 **Discussion:** Life cycle toolbox for managing food adjuncts

17:25 Synthesis of Day 3 and student feedback

18:00 End of Day 3

Off-line work for the next session

Personal project III: Develop an alternative that is more sustainable than the present school menu

Study Assignment #3: Comment on LCA method used in EATS study (see reading list)

Background Material: Video by Robert Wood and Prasad Modak to back up the recipe project

DAY 4 - Monday, 28 September

Upstream action: designing sustainable food

16:00 Welcome back. Key points from Day 3. Comment on Assignment 3. Overview of Day 4

16:10 **Briefing:** Workshop orientation – Elements for design of a sustainable meal (Prasad Modak)

16:20 **Workshop** (group work):

- W1. Identify and prioritise life chain SDG issues and relevant LCM toolbox elements in meal design,
- W2. Identify upstream-downstream issues for an alternative food (almond milk),
- W3. Consider life cycle impacts of a novel food (BASF hamburger).

Summarise results on use of LCM toolbox

17:40 **Group presentations:** Groups share and compare their outcomes via plenary chat and zoom

18:00 **Short lecture:** Assessing biodiversity impacts in food and biomass production (Ulrika Palme)

18:15 Synthesis of Day 4 and student feedback

18:30 End of Day 4

Off-line work for the next session

Personal project IV: List data requirements and sources for a future LCA of your meal proposal

Study assignment #4: Assessing carbon offsets from forestry & agriculture: a case study

Background Material: Thematic Webinar “Carbon offsets through food and biomass” (Niclas Svenningsen)

DAY 5 - Tuesday, 29 September

Applying LCA and LCM to climate offsets from crops and forestry

16:00 Welcome back. Key points from Day 4. Comment on Assignment 4. Overview of Day 5

16:10 **Briefing:** Theme for workshop – Life cycle look at climate offsets (Niclas Svenningsen)

16:25 **Workshop** (group work):

- W1. Carbon offsets using forestry
- W2. Offset possibilities through biofuel
- W3. Life cycle toolbox for carbon offset assessment and management.

Summarise conclusions on the use of the LCM toolbox for evaluating climate offsets

17:40 **Group presentations:** Groups share and compare their outcomes via plenary chat and zoom

18:00 **Short lecture:** Social LCA in food production and bioeconomy (Alberto Bezama)

18:15 Synthesis of Day 5 and student feedback

18:30 End of Day 5

Off-line work for the next session

Personal project V: Identify social factors to take into account in providing a sustainable lunch menu

Study assignment #5: Return to the pre-event reading assignment – “Factor 4 energy reduction in the food chain”.

Q1: How much of this study is still relevant today?

Q2: How have sustainability issues evolved since the study was published?

Q3: What guidance can this study give to the school menu proposal?

Background Material: Thematic Webinar “Stakeholder participation in food-sector LCA” (Eva Sevigné-Itoiz)

DAY 6 - Thursday, 01 October

Biomass, food and climate change

- 16:00 Welcome back. Key points from Day 5. Comment on Assignment 5. Overview of Day 6
- 16:10 **Keynote lecture:** Evaluating GHG reduction in the food chain (Mark Radka)
- 16:50 **3 Viewpoints and Q&A:**
- Carbon reductions in the lunch menu – what can LCA tell us?
 - Energy efficiency in the food cycle – is a Factor 4 reduction possible?
 - Evaluating crops for a warmer world – implications and LCM
- 17:30 **Discussion:** LCM toolbox for regional responses to climate impacts from food products
- 17:45 Synthesis of Day 6 and student feedback
- 18:00 End of Day 6

Off-line work for the next session

- Personal project VI: Prepare a life cycle management plan for your menu, including procurement, preparation, delivery, and waste disposal stages.
- Study assignment #6: In the ISWA article on food waste (Reading List), which life cycle tools are proposed?
- Background Material: Thematic webinar “Waste prevention, circular economy, and food waste management” (Yanne Goossens)

DAY 7 - Monday, 05 October

Downstream action: the life cycle of food waste

- 16:00 Welcome back. Key points from Day 6. Comment on Assignment 6. Overview of Day 7
- Briefing:** Theme for workshop – Holistic regional food waste management plan (Prasad Modak)
- 16:20 **Workshop** (group work): Identify supply-chain waste reduction options for regional lunch menus
- W1. Propose circular economy options for food containers and packaging
 - W2. What are key SDG criteria in a regional food composting scheme
 - W3. Identify social factors relevant to sustainable food recovery from local canteen menus.
- Combine group results into a larger regional waste management plan
- 17:40 **Group presentations:** Groups share and compare their outcomes via plenary chat and zoom
- 18:00 **Short lecture:** “LCA in the kitchen” (Robert Wood and Prasad Modak)
- 18:15 Synthesis of Day 7 and student feedback
- 18:30 End of Day 7

Off-line work for the next session

- Personal project VII: Draft an information note (250 words maximum) the region will send to parents explaining the new menu for their children, and the reasons for its contents.

DAY 8 - Tuesday, 06 October

Life cycle implications of a bio-economy

- 16:00 Welcome back. Key points from Day 7. Recipe feedback. Overview of Day 8
- 16:10 **Keynote lecture:** The EU strategy on bioeconomy and the Green Deal (Daniela Thrän)
- 16:50 **Feedback:** Use of life cycle tools for understanding bio-economy (Alberto Bezama)
- 17:05 **3 Viewpoints and Q&A:**
- Bio-economy for energy independence – use of LCA
 - Social implications of bio-economy – use of SLCA
 - Bio-economy for alternative and novel feedstocks – use of LCC
- 17:35 **Discussion:** Stakeholder partnerships in a bio-economy
- 17:45 Synthesis of Day 8 and student feedback
- 18:00 End of Day 8

Off-line work for the next session

- Personal project VIII: Submit your menu with a short self-evaluation of SDG performance to the organisers, accompanied by the information note.
- Study assignment #6: Prepare an abstract of around 250 words to a scientific journal "Sustainable Food Update" on: (Group 1) "*Application of a regional Life Cycle Management toolbox for the food cycle in a sustainable world*", or (Group 2) on "*Sustainable lunch menus in regional schools and institutions*", or (Group 3) "*The future of sustainable food*"

DAY 9 - Thursday, 08 October

Sustainable food and biomass: the life cycle toolbox revisited

- 16:00 Welcome back. Retrospective of the last 3 weeks
- 16:10 **Discussion:** Key issues & features identified during the summer school
- Food cycle and biomass issues and sustainability responses
 - A regional life cycle management toolbox for sustainable food and biomass
- 16:40 **Award ceremony:** The sustainable recipe book – 3 best menus
- 17:10 **Editorial Board** decision on submitted abstracts
- 17:30 Conclusions and feedback/evaluation
- 18:00 End of Day 9